

Energy, Mines and Resources • *Yukon Geological Survey*

# YUKON

## EXPLORATION & GEOLOGY

# 2006

- Mining, Development & Exploration
- Placer Mining
- Mineral Incentives
- Yukon Geological Survey
- Commission géologique du Yukon
- Mining Reclamation Awards





**YUKON  
MINING,  
DEVELOPMENT  
AND  
EXPLORATION  
OVERVIEW**

**2006**

Edited by  
D.S. Emond, L.L. Lewis and L.H. Weston

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## PHOTOGRAPHS

**Front cover:** Geoff Bradshaw (Yukon Geological Survey) strikes a 'hero pose' at the Crest Iron  
property, Yukon. Photo by Lara Lewis, YGS.



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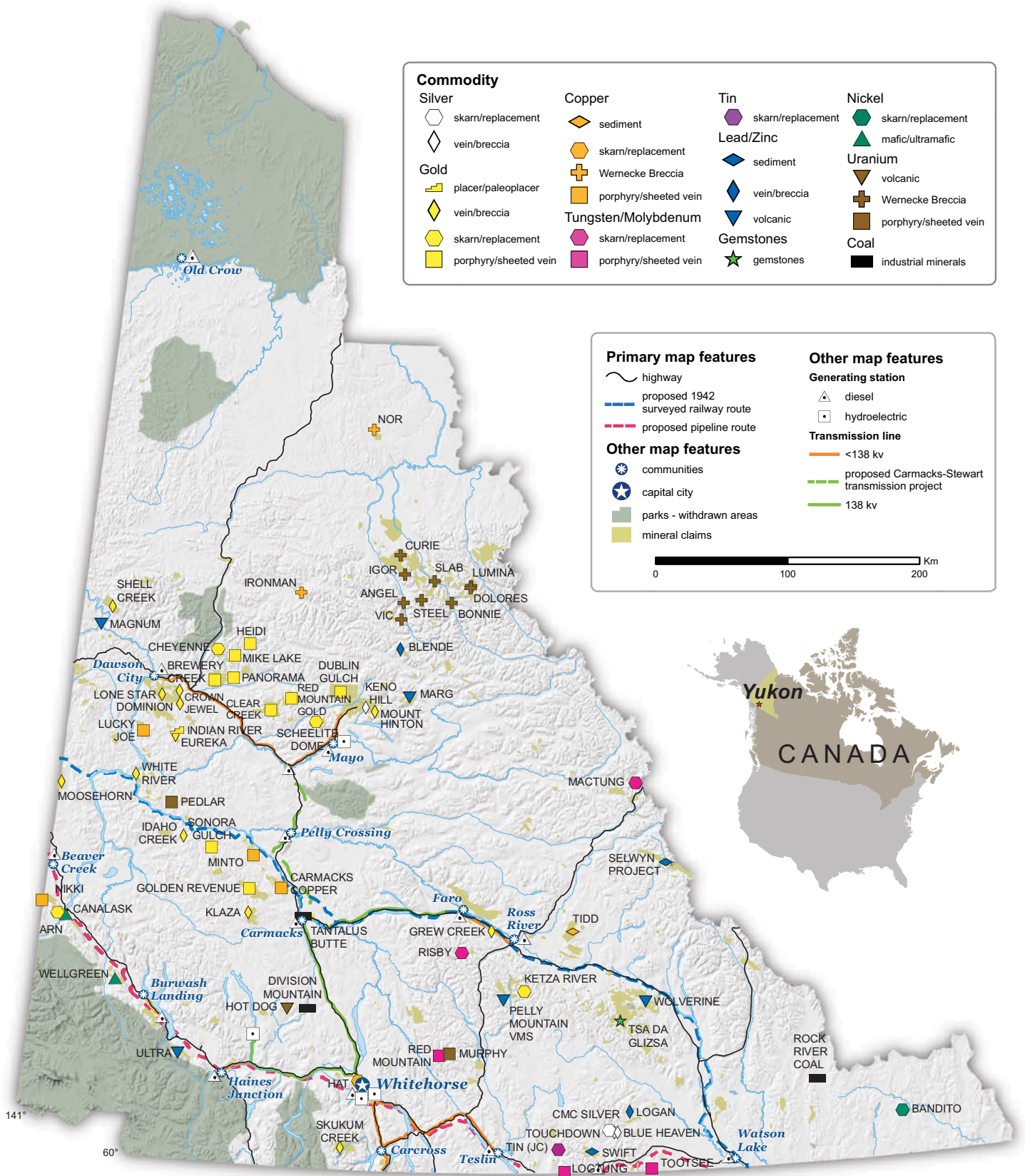


Figure 1. Location map of advanced (>\$100 000 expenditures) exploration projects in Yukon, 2006.

# Yukon Mining, Development and Exploration Overview 2006

*Mike Burke<sup>1</sup>, Steve Traynor and Lara L. Lewis*

*Yukon Geological Survey*

Burke, M., Traynor, S. and Lewis, L.L., 2007. Yukon Mining, Development and Exploration Overview 2006. *In: Yukon Exploration and Geology 2006*, D.S. Emond, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 2-47.

## ABSTRACT

Mineral exploration in Yukon has reached record levels with over \$80 million spent on the search for base and precious metals, coal, gemstones and uranium in 2006. Exploration for gold attracted the largest share of the exploration dollars, capturing 35%, followed by zinc at 22%, uranium 15%, copper 12%, silver 7%, tungsten and molybdenum 6%, and the remainder being spent on coal and gemstones.

Mine development expenditures have also increased dramatically with an estimated \$50 million being spent on the Minto mine, which is scheduled to be in production in the second quarter of 2007. The total development costs at Minto, including a 50% mill expansion in the first year of mining, are estimated to be \$107 million.

Exploration activity at all levels in Yukon, from grassroots stages to advanced exploration, has experienced a dramatic increase. A total of 70 of the approximately 150 exploration projects in Yukon had expenditures of greater than \$100 000, with 21 of these projects spending more than \$1 million. The largest program was the Selwyn project, where drilling continued into December, with expenditures of over \$12 million, confirming and expanding the huge zinc resources at Howards Pass (Selwyn Project).

## RÉSUMÉ

L'exploration minière au Yukon a atteint des niveaux records avec plus de 80 millions \$ consacrés en 2006 à la recherche de métaux communs et précieux, de charbon, de pierres précieuses et d'uranium. La prospection axée sur l'or a attiré la plus grande part des budgets, soit 35 %, suivie par le zinc (22 %), l'uranium (15 %), le cuivre (12 %), l'argent (7 %), le tungstène et le molybdène (6 %), le charbon et les pierres précieuses se partageant le reste.

Les dépenses consacrées aux développements miniers ont également augmenté de façon spectaculaire. Près de 50 millions \$ ont ainsi été dépensés pour la mine de cuivre et d'or de Minto qui devrait entrer dans sa phase de production au second trimestre de 2007. Le total des dépenses pour la mine de Minto, y compris le coût de l'expansion de 50 % du malaxeur au cours de la première année, est estimé à 107 millions \$.

Au Yukon, les activités d'exploration à tous les niveaux, de la phase initiale aux étapes avancées, s'intensifient de manière remarquable. Au total, 70 des 150 projets d'exploration mis en œuvre au Yukon s'accompagnent de dépenses supérieures à 100 000 \$, et 21 de ces projets affichent des coûts dépassant le million de dollars. Le programme le plus important est le projet Selwyn, pour lequel les forages ont continué jusqu'en décembre et les dépenses dépassent maintenant 12 millions \$. Le projet confirme la présence d'énormes réserves de zinc et de plomb à Howards Pass (le projet Selwyn).

<sup>1</sup>mike.burke@gov.yk.ca

## INTRODUCTION

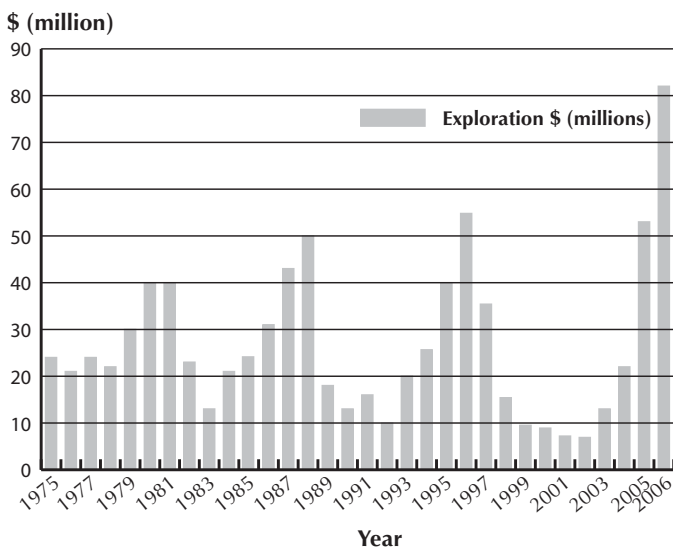
Mineral exploration expenditures in Yukon experienced a significant increase for the fifth consecutive year, rising to an estimated \$80 million, a huge increase over the low of \$7.4 million spent on exploration in 2001 (Figs. 1 and 2). In addition to the increase in mineral exploration, an estimated \$50 million was spent on mine development, all at Sherwood Copper Corporation's Minto (copper-gold-silver) mine. Construction at the mine was on schedule at year-end, and production is slated for the second quarter of 2007. Yukon Zinc Corporation completed a bankable feasibility study on the Wolverine (zinc-silver-lead-copper-gold) deposit in May, 2006 and proceeded with an optimization study during the year. A quartz mining license was issued for the Wolverine project; upon completion of the optimization of the feasibility study and the securing of project financing, the company expects to make a production decision in 2007. Cash Minerals Ltd. completed a feasibility study on their Division Mountain (coal) project. While the feasibility study concluded that current conditions did not support the development of a mine to serve the export market, it did prove technically and economically feasible to develop an open-pit mine, and the product sold to a potential 50-megawatt mine-mouth power station.

A significant amount of claim staking took place in 2006, with a total of 14 034 claims staked during the season (Fig. 3), which increased the number of claims in good standing to 57 968 by the end of the year (Fig. 4).

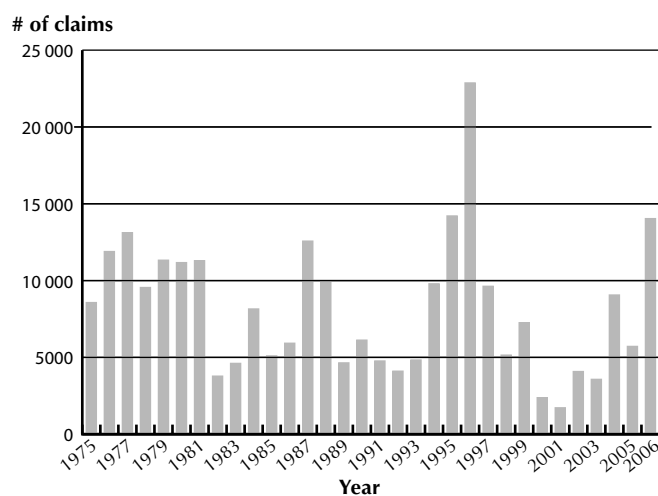
The Yukon government continued to support the mineral industry in several areas including: 1) the Yukon Mining Incentives Program, which offered approximately \$880 000 to 53 successful applicants (Traynor, this volume); and 2) the Yukon Mineral Exploration Tax Credit, which offers a refundable corporate and personal income-tax credit of 25% of eligible mineral exploration expenditures incurred by qualified individuals and corporations conducting off-minesite exploration in the Yukon between April 1, 2004 and March 31, 2007. Control over the Territory's natural resources was transferred from Canada to the Yukon government in 2003. Decisions regarding oil and gas, mining, lands, forests and water are now made by the Yukon government. Internally, the government has initiated an Integrated

Resource Management Strategy. This strategy streamlines the review process by addressing policies and legislation gaps, and it establishes better collaboration between government departments. An example of this strategy is the Project Management Process that assists mining companies in their efforts to secure permits for development proposals. Project coordinators are assigned to individual projects to assist with the reviews and timely resolution of issues. The project coordinators report to a team of deputy ministers that is responsible for regulatory approvals. This committee is chaired by the Department of Energy, Mines and Resources. Currently, six Yukon projects have been assigned project coordinators: Yukon Zinc Corporation's Wolverine (zinc-silver-lead-copper-gold), Cash Minerals Ltd.'s Division Mountain coal, Western Copper Corporation's Carmacks Copper (copper-gold), Tintina Mines Ltd.'s Red Mountain (molybdenum)

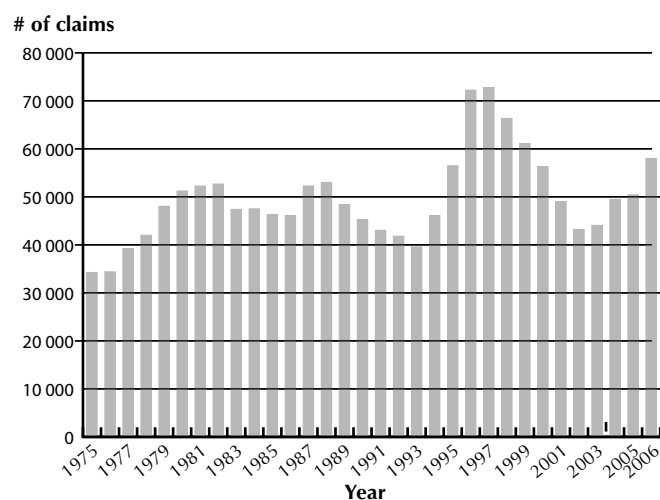
**Figure 2.** Exploration expenditures in Yukon, 1971 to 2006.







**Figure 3.** Mineral claims staked, 1975–2006.



**Figure 4.** Mineral claims in good standing, 1975–2006.

deposit, YGC Resource's Ketz River (gold) and Tagish Lake Gold Corp's Skukum Creek (gold-silver) project.

The Government of Yukon also maintained current levels of funding for geoscience projects, under the auspices of the Yukon Geological Survey. In addition, 11 of 13 Yukon First Nations have ratified their land claim agreements.

All of the Yukon mineral occurrences and properties mentioned in this report are documented in detail in the Yukon MINFILE (Deklerk and Traynor, 2005), which can also be accessed online ([www.geology.gov.yk.ca](http://www.geology.gov.yk.ca)).

Exploration results for many of the projects were still pending when this report went to press. The reader is encouraged to visit company websites for the most recent results.

## MINE DEVELOPMENT

Sherwood Copper Corporation ([www.sherwoodcopper.com](http://www.sherwoodcopper.com)) began development of the open-pit **Minto** (copper-gold-silver) mine in 2006 (Fig. 5). Production from the deposit is scheduled to begin in the second quarter of 2007. The deposit is a magmatic-hydrothermal copper-gold deposit hosted in foliated zones within granodiorite of the Jurassic Klotassin Batholith. The deposit bears similarities to porphyry and iron oxide-copper-gold deposits, but the origin of the deposit is still subject to debate (Fig. 6).

The deposit has Measured and Indicated reserves of 9.06 Mt grading

**Figure 5.** Pre-stripping of the Minto copper-gold-silver deposit, July, 2006.



**Figure 6.** High-grade chalcopyrite-bornite mineralization from the Minto deposit.



1.78% Cu, 0.62 g/t Au and 7.3 g/t Ag at a 0.5% Cu cut-off grade, and contains a high-grade core of 4.03 Mt grading 2.82% Cu, 1.02 g/t Au and 11.6 g/t Ag at a 1.5% Cu cut-off. The feasibility study indicates the head grades will average 3.3% Cu and 0.94 g/t Au in the first year, and 2.4% Cu and 0.88 g/t Au in the first six years of operation. Production will average 41 million pounds (19 million kg) copper, 17,295 ounces (490 300 g) gold and 250,000 ounces (7 087 000 g) silver in the first six years of operation, at a cash cost of US\$0.57 net of byproduct credits. Financing for completion of the construction of the mine was provided by a debt package with Macquarie Bank Ltd., totaling C\$85 million. The project has a very attractive Net Present Value of C\$173.4 million at a 7.5% discount rate pre-tax and an internal rate of return of 53.2%. The company continues to optimize the feasibility study and expects that several modifications, such as tying in to the proposed expansion of the Yukon power grid, will lead to further improvements to the project.

The Minto project has had great success in exploration on the mine property. Several areas have had historical (1970s) drill intersections with significant copper grades that had not previously received any follow-up. Geophysics in these areas has helped to refine and expand the exploration targets on the property. Sherwood concentrated their drilling efforts mainly on one of these targets just south (130 m) of the planned open pit called Area 2. The company drilled 79 holes in the target area intersecting mineralization that appears to be an extension of the main Minto deposit. The drilling intersected a similar thickness of mineralized rock to the Minto deposit, including high-grade bornite-rich mineralization that was assayed at 5.1% Cu, 2.6 g/t Au over 8.1 m within a 13.4-m interval grading 3.4% Cu, 1.7 g/t Au in hole 06SWC-146. Sherwood has engaged SRK Consulting to conduct an independent pre-feasibility study on the Area 2 mineralization. Many more compelling exploration targets exist on the property and the potential to extend the mine life is excellent.

## PRECIOUS METALS – GOLD

Epigenetic gold mineralization is recognized in several different settings within Yukon. These consist of intrusion-related gold, associated with mid-Cretaceous plutonism; orogenic gold, related to Jurassic and Eocene events; epithermal gold, related to late Cretaceous to Eocene sub-aerial volcanism; and gold skarns, related to Cretaceous oxidized and reduced intrusions. Exploration for intrusion-related gold occurred mainly within the western portion of the Tintina Gold Belt between Dawson and Mayo, where accessibility is greatest, and also in the Dawson Range in central Yukon, north of Carmacks, an area well known for its placer-gold and copper-porphyry potential.

### SKARN/REPLACEMENT

YGC Resources Ltd. ([www.ygcr.ca](http://www.ygcr.ca)) conducted the largest exploration program for gold on the **Ketza River** gold property (Yukon MINFILE 105F 019), where diamond drilling occurs year-round (Fig. 7). Mineralization at Ketza consists of massive, pyrrhotite-pyrite manto deposits hosted in Lower Cambrian limestone (Fig. 8), as well as quartz-pyrrhotite-pyrite veins hosted in Lower Cambrian argillite, which stratigraphically underlie the limestone unit. Oxidized mantos mined at the Ketza River deposit between 1988 and 2000 produced approximately 3.1 million grams of gold. YGC Resources Ltd. is concentrating on increasing the sulphide mineral resources on the property. A 43-101-compliant<sup>1</sup> resource for the property was completed in November, 2005 (see Table 1).

**Table 1.** Sulphide resources at the Ketza River property (43-101-compliant).

Classification	Tonnes (t)	Gold (g/t)	Contained ounces	Cut-off grade
Measured	1 410 000	3.54	160,500	1.0 g/t
Indicated	7 130 000	2.60	596,200	1.0 g/t
Inferred	14 580 000	2.25	1,054,000	1.0 g/t



**Figure 7.** Winter drilling at the Ketza River gold property of YGC Resources.

<sup>1</sup>Note that where this standard is mentioned, it refers to Canadian Securities Administrators (2001).

**Figure 8.** Massive pyrrhotite-pyrite mineralization in drill core from the Calcite zone, a new discovery at Ketza River.



In 2006, YGC Resources completed 34 663 m in 271 diamond drill holes on the property, expanding the existing resources and testing previously undrilled areas. New discoveries were made. The results of this year's drilling will be used to update the existing resource and complete the pre-feasibility study that was initiated in 2006. The company is planning on making a production decision in 2007.

Dynamite Resources Ltd. ([www.dynamiteresources.com](http://www.dynamiteresources.com)) completed a program on the **Mike Lake** property (Yukon MINFILE 116A 012) that included 2250 m of diamond drilling in 17 holes (Fig. 9). The bulk of the drilling was directed at the North Vein zone, a skarn horizon developed within calcareous sedimentary rocks adjacent to a Cretaceous Tombstone Suite intrusion. Intersections up to 17.23 m of 3.48 g/t Au were encountered in the drilling. Drilling also tested additional geochemical and geophysical targets on the property.

**Figure 9.** Helicopter-supported drilling at the Mike Lake project of Dynamite Resources.



Logan Resources Ltd. ([www.loganresources.ca](http://www.loganresources.ca)) conducted a program of VLF/EM surveying and prospecting confirming previous results from known showings on the **Cheyenne** (Yukon MINFILE 116B 001, 094, 096) property, in addition to re-sampling the Golden Wall showing (discovered in 2005). The Golden Wall showing consists of pyrrhotite-pyrite skarn hosted in calcareous sedimentary rocks adjacent to a Cretaceous Tombstone Suite intrusion. Grab samples from the Golden Wall assayed up to 5.04 g/t Au.

Logan Resources Ltd. conducted a drilling program late in the season on the **Heidi** (Yukon MINFILE 116A 037) property. Skarn mineralization in calcareous sedimentary rocks was targeted and two drill holes (427 m) were

**Figure 10.** Late-season drilling on the Heidi gold property of Logan Resources.



completed before winter conditions suspended the program (Fig. 10). Drill results were not available by year-end.

ATAC Resources ([www.atacresources.com](http://www.atacresources.com)) optioned their **Arn** (Yukon MINFILE 115F 048) property to a private company. The Arn property covers a number of gold skarn occurrences that have returned values up to 11.92 g/t Au and 0.18% Cu over 12.67 m in previous drilling. The company completed a program of line-cutting and geophysics (IP and magnetic surveys) in 2006.

### PORPHYRY/SHEETED VEIN

Intrusion-related gold targets related to the mid-Cretaceous Tombstone Suite that forms a part of the Tintina Gold Belt were explored mainly in the Dawson-Mayo area.

The **Dublin Gulch** (Yukon MINFILE 106D 025) property of StrataGold Corporation ([www.stratagold.com](http://www.stratagold.com)) hosts Indicated resources in the Eagle Zone of 66.54 Mt grading 0.916 g/t Au and an additional 14.39 Mt grading 0.803 g/t Au in the Inferred category, calculated prior to the 2006 drilling program. Mineralization in the Eagle Zone consists of gold in sheeted quartz veins, shears and fractures within a Cretaceous Tombstone Suite granodiorite intrusion (Fig. 11).



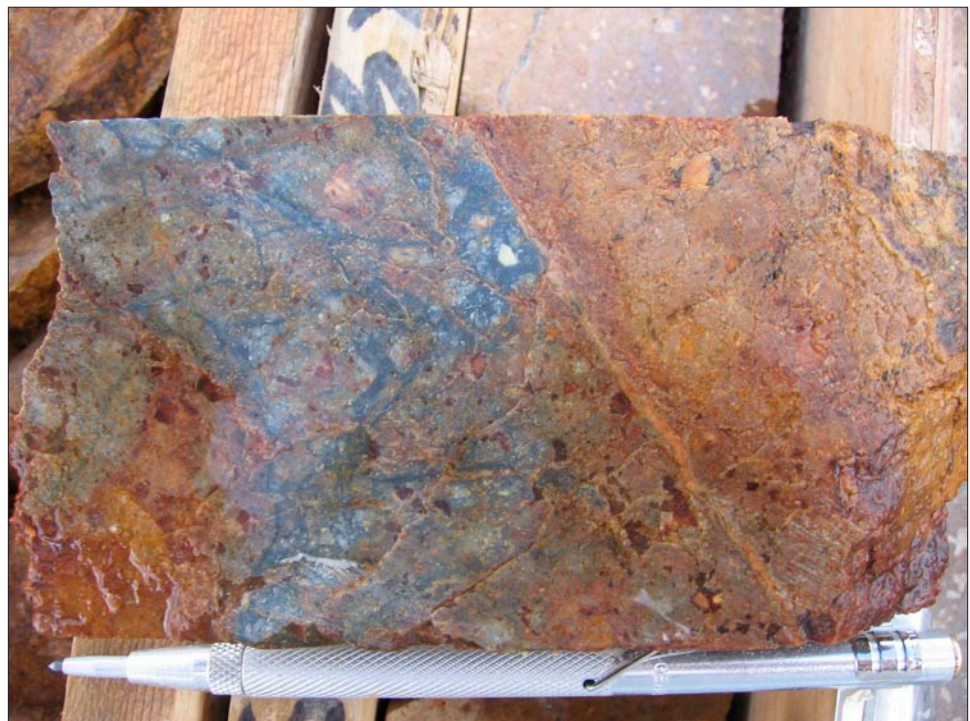
**Figure 11.** Craig Hart examining sheeted quartz veins at the Dublin Gulch gold deposit.

Drilling targeted the Eagle Zone at depth and the Steiner Zone that is located to the north of the Eagle Zone. Drilling at the Eagle Zone had previously tested to a maximum depth of 250 m, while drilling in 2006 intersected mineralization grading up to 0.910 g/t Au over a true width of 26.75 m approximately 180 m below the maximum depth of previous drilling. A mineralized zone, located 130 m north of the Eagle Zone, that had no previous intersected mineralization assayed up to 1.037 g/t Au over a true thickness of 28.18 m. Drilling on the Steiner Zone, located 700 m northwest of the Eagle Zone, intersected sheeted quartz-sulphide veins in granodiorite with up to 22.14 m averaging 1.106 g/t Au and 35.73 m averaging 0.835 g/t Au. StrataGold also conducted a small exploration program on its Clear Creek (Yukon MINFILE 115P 023) property that hosts numerous intrusive-related gold targets.

Alexco Resource Corp. ([www.alexcoresource.com](http://www.alexcoresource.com)) conducted a 9-hole, 1184-m drill program at the **Brewery Creek** (Yukon MINFILE 116B 160) property. The program, managed by NovaGold Resources (19% equity shareholder of Alexco Resources), focused on similarities that the NovaGold exploration team has identified with their Donlin Creek deposit in Alaska. Similar to Donlin Creek, Brewery Creek is related to a series of high-level porphyritic dykes and sills that intrude fine-grained sedimentary rocks, including carbonaceous shale, siltstone and sandstone. Disseminated arsenopyrite and stibnite, and illite and clay alteration is characteristic of both deposits (Fig. 12). Drilling at the Bohemian zone intersected several high-grade intervals including DDH BC06-126, which intersected 9.01 g/t Au over 13.74 m, including 14.47 g/t Au over 7.9 m. The Classic Zone, a potentially large low-grade oxide resource, was also successfully tested in the drill program and had intersections such as 0.99 g/t Au over 19.88 m.

The **Klondike** property (Yukon MINFILE 116A 027) of Alexco Resources is located approximately 30 km east of the Brewery Creek project. Alexco completed a small

**Figure 12.** Siliceous quartz monzonite from the Bohemian zone at Brewery Creek. The core in this interval assayed 4.16 g/t Au.





**Figure 13.** Rock sampling on the Harlan property of Alexco Resources.

program of geological mapping and sampling on the property in 2006. The property hosts gold mineralization associated with Cretaceous Tombstone Suite altered intrusive dykes and sills, hosted by siltstone, calcareous siltstone, and chert of the Ordovician to Lower Devonian Road River Group.

Alexco Resources also conducted a small program of geological mapping, sampling (Fig. 13) and geophysical surveys on the **Harlan** property (Yukon MINFILE 105O 051), located 150 km north of Ross River. Intense alteration and silicification at Harlan is associated with quartz veining in calcareous chert-pebble conglomerate, greywacke, siltstone, and shale of the Devonian to Mississippian Earn Group, as well as with altered Cretaceous Tombstone Suite quartz monzonite dykes and sills. The property remains untested by drilling.

Atac Resources optioned their **Panorama** (Yukon MINFILE 116A 031) property to a private company. Panorama is located approximately 15 km northeast of Brewery Creek and encompasses a small Tombstone Suite granodiorite pluton. The company conducted a program of airborne and ground geophysical surveys (VTEM and IP) on the property this year.

Regent Ventures Ltd. ([www.regentventuresltd.com](http://www.regentventuresltd.com)) carried out diamond drilling on their **Red Mountain** Project (Yukon MINFILE 115P 006). Two areas of gold



**Figure 14.** Versatile Time-Domain ElectroMagnetic (VTEM) surveying of the Red Mountain gold project of Regent Ventures.

mineralization were tested, the 50/50 fault zone and the Saddle Zone. The 50/50 zone is marked by a prominent surface linear with a coincident gold-silver-zinc-copper soil geochemical anomaly. Drilling intersected up to 1.8 m of 0.25 g/t Au, 43.2 g/t Ag and 1.44% Zn. Drilling in the Saddle Zone delineated a swarm of Tombstone Suite intrusive dykes with up to 6.1 m of 0.86 g/t Au. The company also flew the property with an airborne geophysical survey utilizing the VTEM (Versatile Time-Domain ElectroMagnetics) system (Fig. 14).

International Gold Resources Ltd. ([www.intlgold.com](http://www.intlgold.com)) flew the **Mahtin** (Yukon MINFILE 115P 007) property with a VTEM survey. The Mahtin property has extensive gold-arsenic-antimony-bismuth geochemical anomalies on the claims that cover the mid-Cretaceous Sprague Creek intrusion and adjacent calcareous siltstone. The property remains untested by drilling.

Curlew Lake Resources ([www.curlew-lake.com](http://www.curlew-lake.com)) conducted a program of geochemistry and geophysics (magnetic surveys) on their **Typhoon** (Yukon MINFILE 115P 060) property in the Clear Creek area. The company had planned a drilling program in the fall, but was unable to secure a drill to

complete the proposed program. Geophysics and geochemistry suggest the property is underlain by an intrusion.

Copper Ridge Exploration ([www.copper-ridge.com](http://www.copper-ridge.com)) performed an exploration program on their extensive **Scheelite Dome** (Yukon MINFILE 115P 004) property. The work program consisted of additional soil sampling, induced polarization (IP), magnetic and VLF-EM (very low-frequency-electromagnetic) geophysical surveying on 21 km of grid, plus 1430 m of mechanical trenching. The work focused on a previously untested gold-arsenic-bismuth-antimony soil anomaly, the Toby zone. A new zone of gold-bearing quartz-arsenopyrite veins were discovered in the trenching program. Assays of up to 14.9 g/t Au in grab samples, and up to 4.2 g/t Au over a 2.0-m continuous chip sample, were obtained from the trenches. The Scheelite Dome property covers numerous intrusive-related gold targets within a 10-km coincident gold-arsenic-bismuth-antimony soil geochemical anomaly. The Toby zone is located at the southwestern extent of the extensive anomaly.



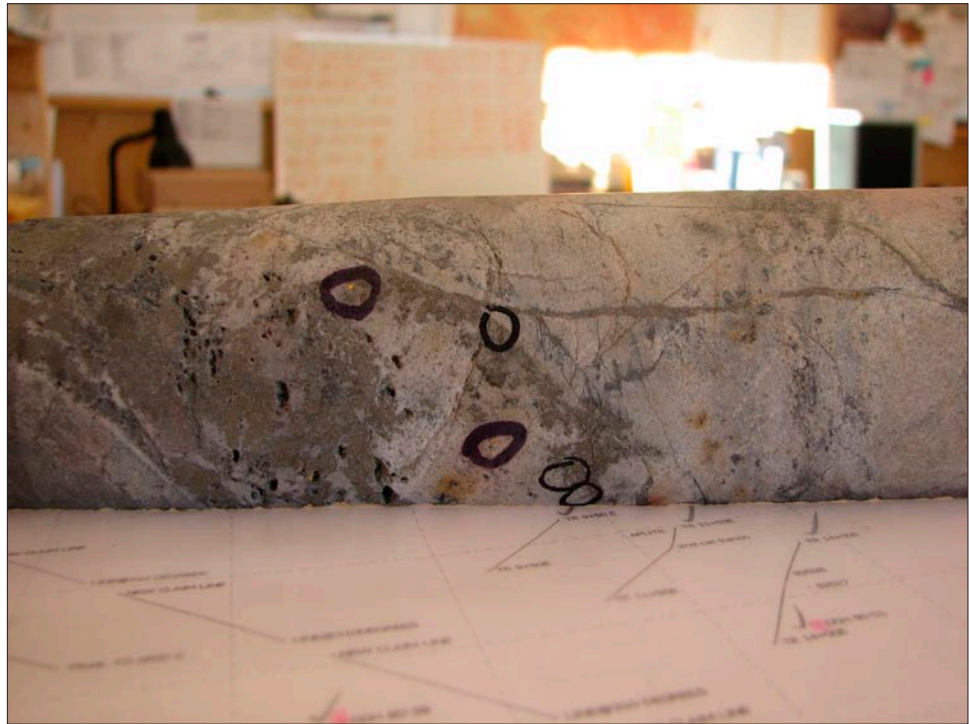
The Dawson Range in west-central Yukon is underlain by Early Mississippian and older metamorphic rocks of the Yukon-Tanana Terrane intruded by several plutonic suites that range in age from Early Jurassic to Early Tertiary. The area is host to numerous styles of magmatic-hydrothermal mineralization related to the various intrusive events. Porphyry gold  $\pm$  copper, molybdenum and associated styles of epigenetic mineralization are found throughout the Dawson Range including the enigmatic Minto copper-gold-silver deposit of Sherwood Copper Corporation that is currently under development.

Northern Freegold Resources ([www.northernfreegold.com](http://www.northernfreegold.com)) successfully assembled a large land package (166 km<sup>2</sup>) in the Dawson Range. The package encompasses numerous mineral occurrences and the entire package is referred to as the **Freegold Mountain** project. The property hosts various styles of mineralization including porphyry, skarn and veins. The acquisition of the land package will allow the company to evaluate the entire mineralization system. The main focus of Northern Freegold's effort this year was to acquire and compile the large amount of historical data that exists on the property, prospecting and sampling, geological mapping, differential GPS mapping, airborne geophysical surveys (VTEM) and diamond and Rotary Air Blast (RAB) drilling. The property hosts a 43-101-compliant Inferred resource, in five zones, of 14 455 800 tonnes at 1.51 g/t Au. The diamond drilling concentrated on the Golden Revenue (Yukon MINFILE 115I 042) property (Fig. 15) optioned from Atac Resources ([www.atacresources.com](http://www.atacresources.com)). Mineralization at the Golden Revenue zone is associated with quartz-feldspar porphyry dykes, and typically consists of pyrite with minor chalcopyrite and/or arsenopyrite occurring on hairline fractures, or is disseminated in the dykes, in narrow quartz veinlets and breccia zones in the dykes, and adjacent metasedimentary and metavolcanic rocks. Only partial results from the laboratory had been received by year-end. The first 5



**Figure 15.** Diamond drilling on the Golden Revenue deposit. Mechanic Creek, an active placer mining creek, is visible (top right) below the deposit.

**Figure 16.** Visible gold in drill core from the Golden Revenue deposit.



of 26 drill holes returned values up to 19.81 m of 1.74 g/t Au and 27.01 m of 1.02 g/t Au. Visible gold was also noted in the drilling (Fig. 16).

**Figure 17.** Silicified and sulphidized quartz-feldspar porphyry from the Sonora Gulch property.



Firestone Ventures Inc. ([www.firestoneventures.com](http://www.firestoneventures.com)) conducted an exploration program consisting of geological mapping, prospecting, geochemistry and geophysics, followed by diamond drilling of 1821 m in 12 holes on the **Sonora Gulch** (Yukon MINFILE 115J 008) property in the Dawson Range. The exploration program defined five new gold ± copper and molybdenum targets within the larger K-467 zone that were subsequently tested by the drilling campaign. Strongly clay-altered, silicified and sulphidized (pyrite plus additional unidentified sulphide minerals; Fig. 17) intrusive rocks, shear-hosted mineralized quartz veins, and quartz stockwork were some of the styles of mineralization intersected in the various zones. The drilling encountered significant gold-silver intersections in four of the five zones. The Amadeus zone had the most significant result, with hole SG-06-06 intersecting 153 m of 6.21 g/t Au and 3.0 g/t Ag, including 5.0 m of 12.19 g/t Au and 4.8 g/t Ag. This new discovery has greatly enhanced the potential of the property.

#### VEIN/BRECCIA

The road-accessible **Skukum Creek** gold-silver (Yukon MINFILE 105D 022) deposit of Tagish Lake Gold Corp. ([www.tagishgold.com](http://www.tagishgold.com)) is located 80 km southwest of Whitehorse (Fig. 18). Tagish Lake also owns two other

deposits in the area, Mt. Skukum and Goddell Gully (Yukon MINFILE 105D 158 and 025), but is focused on bringing the Skukum Creek deposit into production. The Skukum Creek deposit is a polymetallic vein deposit containing structurally controlled mineralization within northeast-trending faults and shear zones (Soloviev, this volume). The company extended the underground workings at Skukum Creek by 300 m, and conducted a 6500-m underground drilling program designed to upgrade and expand the resources at the deposit as part of the ongoing feasibility study. Drilling returned numerous high-grade gold-silver intersections that will upgrade and expand the known resource of 800 000 tonnes of 6.78 g/t Au and 248 g/t Ag (Measured and Indicated), plus 90 000 tonnes of 6.53 g/t Au and 225 g/t Ag (Inferred) in the Rainbow, Kuhn and Ridge zones. The drilling also resulted in a new discovery called the Berg zone. In addition to the exploration, the company continued with environmental and metallurgical studies for the ongoing feasibility study. Metallurgical testwork resulted in a significant increase in overall silver recoveries to 77% and gold to 85.5%. Improvements to silver and gold recoveries have allowed the company to lower the cut-off grade for the deposit to 4 g/t Au equivalent from the pre-feasibility study that used a 5 g/t Au equivalent cut-off. This will result in an increase in the contained gold and silver in the resource. The company plans on completing the feasibility study and making a production decision in 2007.



**Figure 18.** The Skukum Creek gold-silver deposit.

Klondike Star Mineral Corporation ([www.klondikestar.com](http://www.klondikestar.com)) continued to work on their extensive mineral exploration properties, totaling approximately 370 km<sup>2</sup>, south of Dawson City in the historical Klondike placer mining district. Klondike Star's claims cover numerous mineral occurrences in the district. The company added to their landholdings in the district by optioning the DOM claims from KSL (Yukon) Exploration and the King Solomon Dome (Yukon MINFILE 115O 068) property from J.A.E. Resources. The company conducted geological mapping, geochemistry, geophysics (IP) and trenching on a number of properties, and diamond drilling on the **Lone Star**



**Figure 19.** Diamond drilling on the Lone Star property in the Klondike.

(Fig. 19) and **Buckland** properties (Yukon MINFILE 115O 072, 077). Gold at the properties occurs with disseminated pyrite, and locally is associated with narrow discordant quartz veins. The mineralized zones are associated with quartz-carbonate-pyrite alteration and are hosted by felsic metavolcanic schist. The mineralized horizon at Lone Star trends northwest and dips gently to the northeast. Drilling at the Buckland zone returned values up to 98.7 g/t Au over 0.90 m. Drilling on the Lone Star continued to expand the zone, intersecting wide intervals of low-grade mineralization that include short intervals of higher grade mineralization, such as 32 m grading 0.40 g/t Au, including 1.0 m of 6.61 g/t Au in hole 06LS-04.

Strategic Metals Ltd. ([www.strategicmetalsltd.com](http://www.strategicmetalsltd.com)) conducted a program of excavator trenching and reverse circulation drilling on their **Eureka** (Yukon MINFILE 115O 057) property. Previous work has identified gold-bearing vein and breccia zones in this area that are in an area characterized by very rich placer creeks. Results were not available at year-end.

International Gold Resources Inc. ([www.intlgold.com](http://www.intlgold.com)) performed geochemical sampling on their **Crown Jewel** and **Bonanza** claims (Yukon MINFILE 115O 139, 080) in the Klondike placer mining district. Previous work has identified gold-quartz veins, while the current work was directed at obtaining high-quality geochemical samples through the use of soil augers.

Yukon Gold Corporation ([www.yukongoldcorp.com](http://www.yukongoldcorp.com)) conducted a program of geological mapping, geochemical sampling and road building on the **Mt. Hinton** gold-silver (Yukon MINFILE 105M 072) property near Keno Hill. Quartz-sulphide veins are numerous on Mt. Hinton and have returned some spectacular results, with individual specimens assaying up to 693 g/t Au and 8959 g/t Ag. A program of reverse-circulation drilling on the property was cancelled due to the mechanical failure of the drill.

**Figure 20.** High-grade gold-silver bearing quartz-pyrite-galena vein from the Hartless Joe property.



Mountain Rio Resources, a private exploration company, explored the **Moosehorn** (Yukon MINFILE 115N 024) property with geological mapping, sampling and diamond drilling. The company completed approximately 2250 m of diamond drilling in 24 holes, testing the extent of the gold-bearing veins. High-grade auriferous quartz veins on the Moosehorn property have been subjected to small-scale historical open-cut mining. Auriferous quartz veins in granodiorite occur mainly along northwest-trending joints, with shallow easterly dips (20° to 40°). The veins host two types of gold mineralization: (1) micron gold within sulphide minerals; and (2) visible blebs of free gold up to 1-2 mm in width.

New Shoshoni Ventures Ltd. ([www.newshoshoni.com](http://www.newshoshoni.com)) optioned the **Hartless Joe** (Fig. 20; Yukon MINFILE 105 203) and **Byng** (Yukon MINFILE 105 184) properties from ATAC Resources. The properties,



**Figure 21.** The gentle slope in the foreground, located on the Horn property, contains gold-in-soil anomalies of up to 1060 ppb.

located approximately 40 km northeast of Whitehorse, host high-grade epithermal gold-silver veins in Middle Triassic Joe Mountain volcanic rocks. The company performed an airborne VTEM geophysical survey and follow-up prospecting on the claims. Prospecting confirmed earlier high-grade results and float samples assayed up to 29.97 g/t Au and 9487 g/t Ag.

In the Upper Hyland River area in eastern Yukon, Ryanwood Exploration conducted soil geochemistry and magnetic surveys over the **Horn** (NTS 105H/15) claims (Fig. 21). The claims are the northernmost in a 50-km belt of gold properties. Work by Hart and Lewis (2006) suggests that auriferous quartz veins in the belt have characteristics similar to orogenic gold veins, and thus potentially relate to regional metamorphism and large structural features. Soil sampling outlined an area over 1 km<sup>2</sup> with gold-in-soil anomalies up to 1060 ppb.

Northern Freegold Resources' large **Freegold Mountain** property encompasses numerous mineralized occurrences including the Goldstar (Yukon MINFILE 115I 053), Rage and Seymour (Yukon MINFILE 115I 121) zones. The company sampled mineralized veins and dykes that range from trace values to 3.7 g/t Au and 13.7% Cu (2006 grab samples). Central to these zones is the Stoddart (Yukon MINFILE 115I 121) porphyry, which has similar characteristics to the Nucleus zone, yet remains untested by drilling. The company also conducted geological mapping, sampling and core re-logging on the Tinta Hill (Yukon MINFILE 115I 058) property, where a polymetallic vein occupies a shear zone cutting a Jurassic quartz diorite (Fig. 22).

Bannockburn Resources Limited optioned the Klaza (Yukon MINFILE 115I 067) property from ATAC Resources and completed a program of line-cutting and

**Figure 22.** Historical drill core, properly preserved and undisturbed from the Tinta Hill property of Northern Freegold Resources.



ground-based geophysics (IP). At Klaza, polymetallic gold-silver veins cut the Cretaceous Dawson Range Batholith. Previous drilling has intersected mineralization assayed at up to 6.27 g/t Au and 15.1 g/t Ag over 8.9 m.

Klondike Silver Corp. ([www.klondikesilver.com](http://www.klondikesilver.com)) optioned the **Idaho Creek** (Yukon MINFILE 115J 099) property from ATAC Resources and completed a program of ground geophysics (IP) and reverse circulation drilling. The property covers an area of poor exposure that has a large multi-element soil geochemical anomaly. Previous work has identified different styles of mineralization including manganiferous quartz veins, consisting of limonite boxwork with minor pyrite, arsenopyrite, galena and sphalerite. The veins occur in altered shear zones cutting mid-Cretaceous granitic rocks. Specimens of vein material assayed up to 15 g/t Au and 1389 g/t Ag.

## PRECIOUS METALS – SILVER

Exploration for silver has increased significantly in Yukon and is led by the renewal of exploration in the Keno Hill mining district. Keno Hill is known as being the second largest silver producer in Canada. Between 1941 and 1989, the district produced more than 217 million ounces of Ag (5.37 million tons) that included average grades of 1389 g/t (40.52 oz/ton) Ag, 5.62% Pb and 3.14% Zn. In southern Yukon, numerous occurrences of silver veins in the Rancheria district have produced grades similar to those in the Keno Hill district. Veins in the Rancheria district, however, only have a small production history. Some of the veins in the Rancheria district were high-graded and ore was shipped to southern smelters. Current exploration in both districts is focused on increasing known resources to support production. Exploration for silver has also increased in the Ketz River area and the Dawson Range, which are previously known silver districts.

## VEIN/BRECCIA

Alexco Resources Corp. ([www.alexcoresource.com](http://www.alexcoresource.com)) conducted a comprehensive exploration program in the Keno Hill mining district (Yukon MINFILE 105M 001) in central Yukon. The district consists of 14 980 hectares of mining leases, quartz claims and crown grants. The lands controlled by Alexco have numerous occurrences of mineral deposits and prospects, including 35 mines with a history of production. The 2006 program culminated with over 11 000 m of diamond drilling in 42 holes. Drilling was conducted in the areas of the historical Silver King, Bellekeno, Husky, Husky Southwest, Lucky Queen, Shamrock and Ruby mines. A new discovery was made in the Silver King East area that is approximately 600 m from the Silver King mine. This discovery at the western end (Fig. 23) of the Keno Hill mining district is characterized by a silver-dominated and gold-bearing disseminated and vein-related mineralized system that is depleted in base metals. The mineralization is hosted in argillically altered greenstone and has high-grade vein mineralization within wide, lower grade stockwork zones. Partial results were returned by year-end and included hole K06-13 which intersected 15.2 m grading 978.6 g/t Ag, 1.37 g/t Au, 0.31% Pb, 0.66% Zn, including a 3.1-m interval that returned 4478.1 g/t Ag, 3.47 g/t Au, 1.12% Pb and 1.83% Zn. The discovery in the Silver King East area is characteristic of a high-level epithermal system and has significant implications for future exploration and potential production for the western end of the Keno Hill mining district. In the eastern end of the district, more typical galena-dominated, vein-fault mineralization was intersected in drilling. Partial



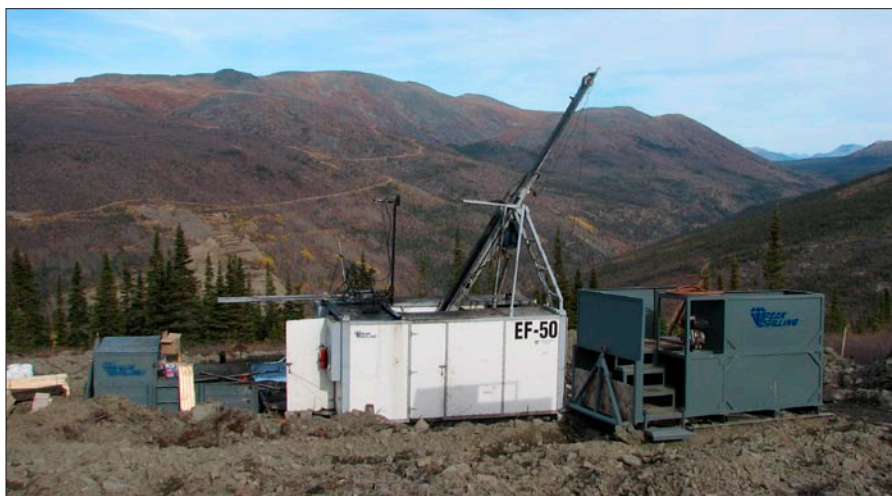
**Figure 23.** View of the new exploration camp (centre) and the headframes of the Husky mine at the western end of the Keno Hill silver camp.

results from the Bellekeno mine (Fig. 24) included assay values from intersections such as in hole K06-11 which contained 2.0 m grading 4628.5 g/t Ag, 63.39% Pb and 7.54% Zn. The Bellekeno mine has a historical (non 43-101 compliant) Measured and Indicated resource of 229 813 tonnes grading 1251 g/t Ag, 0.34 g/t Au, 12.4% Pb, 7.1% Zn, plus an Inferred resource of 34 427 tonnes grading 789 g/t Ag, 0.34 g/t Au, 6.0% Pb, 4.0% Zn. The resource is being upgraded to 43-101 standards. The exploration in 2006 targeted the along-strike and down-dip mineralization from the historically reported resource. Alexco's exploration target at Bellekeno is to develop a 20-million-ounce silver resource.

Approximately 30 km northeast of the Keno Hill mining district, CMC Metals Ltd., ([www.cmcmetals.ca](http://www.cmcmetals.ca)) acquired an option on the **Clarke-Cameron** properties (Yukon MINFILE 106D 11 and 12). The properties host a non-43-101-compliant resource of 327 373 tonnes grading 254.79 g/t Ag, 4.6% Zn and 5.6% Pb in vein and manto styles of deposits. The company performed an airborne geophysical survey in an effort to trace the dominant mineralized structure between the two adjacent properties.

In the Rancheria District in southern Yukon, CMC Metals explored the **CMC** silver property (formerly Silver Hart property; Yukon MINFILE 105B 21) and conducted geological and geochemical surveys, as well as diamond drilling. In addition to the exploration work, environmental studies were initiated, resulting in the

**Figure 24.** Diamond drilling at the Bellekeno mine; Keno Hill is in the background.



**Figure 25.** Kel Sax with Aurora Geosciences of Whitehorse examines drill core on the CMC silver property.



completion of metallurgical testwork, and road upgrading and construction. Mineralization occurs as veins and replacement bodies in Cambrian or older biotite-quartz schist, limy hornfels and calcareous horizons near the margin of the mid-Cretaceous Cassiar Batholith. Trenching resulted in the discovery of a new vein, the 'D' vein, that averaged a width of 1.31 m over a 20.1-m length of the trench. Chip samples have mineral assay values up to 1896 g/t Ag and 73.0% Pb over 1.0 m. Infill drilling on the 'S zone', a high-grade vein hosted in granodiorite, has mineral assay values up to 4619 g/t Ag, 29.3% Zn and 0.36% Pb over 0.15 m (Fig. 25). Additional results from other zones drilled were not yet available at year-end.

CMC Metals acquired an option on the **Logjam** property (Yukon MINFILE 105B 038), located approximately 60 km to the southwest of their CMC Silver property. The company performed an initial property evaluation of historical work that had identified eight quartz veins cutting a steeply dipping diorite dyke that is approximately 610 m wide. The dyke is mineralized with galena, sphalerite, arsenopyrite and pyrite over widths of up to 0.9 m.

Valencia Ventures Inc. ([www.valenciaventures.com](http://www.valenciaventures.com)) acquired an option on several properties in the Rancheria district from Strategic Metal Ltd. and conducted varying levels of exploration on all the claims. The properties include the **Blue Heaven, Touchdown, Qb, End Zone** and **Pigskin** (Yukon MINFILE 105B 20, 22, 98, 101 and 107). All of the properties host a variety of styles of silver-lead-zinc mineralization, which are mainly vein type, but some occur as carbonate replacements. On the Blue Heaven property, trenching in the Hall zone exposed clay-altered granitic rocks that contain zones of manganese staining, silicification and galena mineralization. Assay values from trench samples are up to 10.45 m grading 446.5 g/t Ag and 1.12% Pb. Drilling at the H zone on the Blue Heaven property intersected variably mineralized quartz-vein and quartz-breccia zones that have assay values up to 16.5 g/t Ag, 8.52% Zn and 0.046% Pb over 1.81 m. At the Blue



zone, a single drillhole intersected semi-massive galena and sphalerite mineralization that have two intervals grading 348 g/t Ag, 3.37% Pb and 0.92% Zn, and 1400 g/t Ag, 0.14% Pb and 14.9% Zn over 1.0 m and 0.49 m, respectively. On the Touchdown property, excavator trenching and four diamond drillholes were completed on a structural zone hosting manganiferous and silica alteration within granitic and metasedimentary rocks. Modest silver and zinc mineralization was intersected.

Klondike Silver Corp. ([www.klondikesilver.com](http://www.klondikesilver.com)) optioned the **Connaught** property (Yukon MINFILE 115N 040) from ATAC Resources and completed an airborne geophysical survey (VTEM). Historical work on the property in the Dawson Range of central Yukon identified mineralization consisting of lenses of galena and arsenopyrite, and minor sphalerite, tetrahedrite and boulangerite in northeast-striking quartz veins. The mineralized quartz veins cut Late Devonian- to mid-Mississippian Nasina Assemblage schists of the Yukon-Tanana Terrane. The schists are cut by sills of Early Mississippian granitic augen gneiss and by Late Cretaceous monzonitic to granodioritic intrusive rocks.

Klondike Silver also optioned the **Stump** property (Yukon MINFILE 105F 056) that is located just east of the Ketz River gold property. The property has historical underground workings that intersect a fine-grained galena vein that has mineral assays up to 528.8 g/t Ag over 3 m in a raise. The company collected samples for metallurgical testing.

YGC Resources ([www.ygcr.ca](http://www.ygcr.ca)) optioned claims that cover the **Ketzakey** property (Yukon MINFILE 105F 057) immediately east of their Ketz River gold property. The company completed some late-season diamond drilling on the property. The property hosts vein-type mineralization that consists of galena, pyrite and minor tetrahedrite, as well as sphalerite in a carbonate gangue. Samples from historical underground workings have mineral assays of up to 692.6 g/t Ag and 12.4% Pb over a 1.7 m width. Results of the drilling were not available at year-end.

## BASE METALS – ZINC

### SEDIMENTARY

Selwyn Basin is a continental-margin basin characterized by the deposition of thick sequences of black carbonaceous shales in euxinic conditions, and by the development of second-order basins through periodic extensional tectonism, subsidence and faulting. Over 800 mineral occurrences have been discovered within the limit of Selwyn Basin; 19 of these have been identified as sedimentary-exhalative (SEDEX) deposits. An additional 89 occurrences have been described as SEDEX-type mineralization. Of the three main SEDEX districts (e.g. Anvil, MacMillan Pass and Howards Pass), only those deposits of the Anvil district have been mined, however, all three have potential for significant new discoveries. Other areas of Yukon have potential for SEDEX-type mineralization, but have not received nearly the same level of exploration as Selwyn Basin. These include Selwyn Basin-equivalent rocks of the Cassiar Terrane, and the Nasina Assemblage of the Yukon-Tanana Terrane. In the Yukon-Tanana Terrane, the mineral potential is highlighted by the discovery of massive sulphide mineralization in the Forty Mile district of Alaska, across the Canada-United States border.

**Figure 26.** Diamond drilling on the XY deposit at the Selwyn Project (Howards Pass). The XY exploration camp and airstrip are visible in the background.



The largest exploration program in Yukon was by Pacifica Resources Ltd. ([www.pacificaresources.com](http://www.pacificaresources.com)) on their **Selwyn** Project. The Selwyn Project covers an area of over 300 km<sup>2</sup> that encompasses the bulk of the Howards Pass district (Yukon MINFILE 105I 12, 37 and 38). The approximately \$14-million exploration program included diamond drilling (Fig. 26), geological mapping and prospecting, geochemical surveys, continuing metallurgical analysis and dense media separation testing, and commencement of baseline environmental and engineering studies. Drilling in 2006 resulted in the discovery of the HC, HC West, OP 17 and Pelly North zones. All mineralization zones discovered to date within the district have been in a single defined stratigraphic horizon named the 'Active Member'. All drillholes that have intersected the Active Member have been mineralized. Pacifica's drilling in 2006 tested approximately 37 km of strike length of the Active Member, which demonstrates the incredible size of the mineralizing system at the Selwyn Project.

**Table 2.** Selected drill results from the 2006 drilling program at the Selwyn Project.

Drillhole	Thickness (m)	Zn (%)	Pb (%)
<b>XY high-grade underground target</b>			
XY-150	29.35 (true)	5.8	2.12
including	2.4	18.8	9.12
XY-141	24.72 (true)	8.64	2.26
including	2.85	26.56	4.91
<b>Anniv deposit</b>			
ANC-153	8.7 (true)	6.97	3.57
including	1.67	16.37	13.07
<b>Don Valley-HC West open-pit target area</b>			
DON-22	8.10 (true)	6.02	1.73
including	2.67 (true)	12.33	3.07
<b>Don Valley-Don zone</b>			
DON-42	16.33	6.92	2.62
including	3.88	12.98	6.95

Mineral resources at the Selwyn Project are contained in three deposit areas: the XY, Anniv and Brodel. Resources at the Selwyn Project are 43-101 compliant and consist of 33.50 million tonnes grading 5.52% Zn and 2.10% Pb in the Indicated category, and 112.91 million tonnes grading 5.40% Zn and 2.14% Pb in the Inferred category. These resources include results from 2005 drilling, and will be updated with the over 40 000 m of drilling that was completed in 2006. Drilling in 2006 was directed at upgrading the resource categories in the known deposits, expanding high-grade underground resources, defining resources in the new discovery areas made in 2005, testing the Active Member on a district scale, and defining resources in any additional discovery areas. Drilling in 2006 was also aimed at refining the geologic model of the district to include the physical distribution of the deposits, grade distribution within the deposits, and the ultimate potential of the district. The program was successful in achieving all of the above-mentioned goals.

A few highlights from the vast amount of exploration results are included in Table 2. These results highlight some of the broad intersections of mineralized Active Member and some of the higher

grade intersections (Fig. 27) that are being discovered. The company has also conducted gravity separation testwork that indicates that the stratiform nature of the mineralization allows for the separation of dense mineralized beds from barren waste beds. This feature would permit a pre-concentration of the run-of-mine material before it would enter a concentrator. Simply put, removal of waste material in a gravity separation circuit is much less expensive than milling it, and results in an increase in the grade of material entering a milling facility and lower processing costs.

Yukon Zinc Corporation ([www.yukonzinc.com](http://www.yukonzinc.com)) acquired 100% of the **Swift** property (Yukon MINFILE 105B 026 and 27) in southern Yukon and conducted an airborne gravity survey over the property in 2006. The property hosts skarn-type zinc and copper mineralization. Numerous theories have been put forth as to the origin of the mineralization. Yukon Zinc is designing an exploration program on the property that is modelled on stratabound-type mineralization undergoing later contact metamorphism which resulted in the skarn mineral assemblages of the existing occurrences.

## VOLCANIC

Exploration for volcanic-hosted massive sulphide (VHMS) deposits occurred within variably metamorphosed Upper Paleozoic sedimentary and volcanic rocks of the Yukon-Tanana Terrane, and a belt of Mississippian felsic volcanic and sedimentary rocks of the Pelly Mountain volcanic belt. Rocks of the Yukon-Tanana Terrane are within the Selwyn Basin, a predominantly off-shelf metasedimentary and metavolcanic sequence deposited west of ancestral North America, while rocks of the Pelly Mountain volcanic belt are within the Pelly-Cassiar platform, a miogeoclinal sequence thought to be part of ancestral North America.

Yukon Zinc Corporation completed a feasibility study on the **Wolverine** deposit (Yukon MINFILE 105G 072) in May, 2006 by Hatch Associates Ltd. Yukon Zinc subsequently initiated a review and optimization study to evaluate opportunities for reduction of operating and capital costs, and identify operating improvements to increase cashflow for the proposed operations. The Measured and Indicated resources at Wolverine are 4.46 million tonnes grading 12.14% Zn, 354.8 g/t Ag, 1.16% Cu, 1.69 g/t Au and 1.58% Pb. Inferred resources are 1.69 million tonnes containing 12.16% Zn, 385.4 g/t Ag, 1.23% Cu, 1.71 g/t Au and 1.74% Pb. In December, 2006, Yukon Zinc received its Quartz mining license for development of the Wolverine mine (Fig. 28). The Quartz license is required



**Figure 27.** High-grade, laminated, low-iron sphalerite (grey) from the XY deposit at the Selwyn Project.



**Figure 28.** Portal entrance to the Wolverine deposit.

**Figure 29.** Magnetite in drill core from the Magnum project, a volcanic-hosted massive sulphide target in the Dawson mining district.



to proceed with mine development activities, such as construction of the main access road and earthworks for foundations. The company has applied for a Type A water license that is required for water use and waste deposition during the later phase of construction and operations.

The **Magnum** property (Yukon MINFILE 116C 118), located northwest of Dawson City, was optioned by Klondike Silver Corp. ([www.klondikesilver.com](http://www.klondikesilver.com)) from Strategic Metals Ltd. ([www.strategicmetalsltd.com](http://www.strategicmetalsltd.com)). The property is underlain by volcanic and sedimentary rocks of the Finlayson assemblage, Yukon-Tanana Terrane (Colpron *et al.*, 2006). These rocks were adjacent to the Finlayson Lake volcanogenic-massive-sulphide district prior to the approximately 430 km of post-Late Cretaceous displacement along the Tintina Fault. Magnetic surveys successfully delineated a magnetite-rich horizon (Fig. 29) on the property that may represent an exhalative iron formation, similar to that found in the Finlayson district. Airborne VTEM surveys were flown on the property. Follow-up to the airborne survey included the completion of a 2-hole, 368.8-m, diamond-drill program in the fall.

Results from the program were pending at year-end.

Yukon Gold Corporation ([www.yukongoldcorp.com](http://www.yukongoldcorp.com)) explored the **Marg** copper-lead-zinc-silver-gold deposit (Yukon MINFILE 106D 009) with an airborne geophysical survey (VTEM) and a diamond-drill program (Fig. 30). The Marg deposit is located approximately 80 km northeast of Mayo in central Yukon and is hosted in Devonian to Mississippian Earn Group volcanoclastic and sedimentary rocks of the Selwyn Basin. Drilling is directed at expanding the Indicated resources of 4 646 200 tonnes grading 1.80% Cu, 2.57% Pb, 4.77% Zn, 65 g/t Ag and 0.99 g/t Au, and an Inferred resource of 880 800 tonnes grading 1.55% Cu, 1.90% Pb, 3.75% Zn, 50.4 g/t Ag and 0.95 g/t Au. All drillholes intersected mineralization. Some highlights from drilling include drillhole 93 that intersected 2.38 m of mineralization grading 11.29% Zn, 3.45% Cu, 4.54% Pb, 1.41 g/t Au and 102.1 g/t Ag.

In the Pelly Mountain volcanic belt, Eagle Plains Resources ([www.eagleplains.com](http://www.eagleplains.com)) explored the **MM**, **Fire** and **Ice** properties (Yukon MINFILE 105F 012, 71 and 73) and conducted an airborne geophysical survey (VTEM), geological mapping and prospecting.

**Figure 30.** Nick Mitchell, geologist with Archer, Cathro and Associates (1981) Ltd., at the Marg volcanogenic-massive sulphide deposit.





**Figure 31.** Geologists of Eagle Plains Resources examine the discovery outcrop at the Blende zinc-lead-silver deposit.

## VEIN/BRECCIA

Blind Creek Resources and Eagle Plains Resources conducted a diamond-drill program on the **Blende** deposit (Yukon MINFILE 106D 064) in central Yukon. The Blende is a structurally controlled, carbonate-hosted zinc-lead-silver deposit (Fig. 31). The project commenced with the construction of a winter road into the property in March, 2006, followed by a 23-hole, 4230-m drill program. The Blende hosts an Inferred resource of 19.6 million tonnes grading 3.04% Zn, 2.8% Pb and 56 g/t Ag. The 2006 drill program was aimed at upgrading and expanding the existing resource. The company also performed regional- and property-scale geological mapping, geochemistry and prospecting. In addition, the company supported Mike Moroskat of the University of Alberta, who is currently working on a Master of Science thesis. Results were not available at year-end.

Yukon Zinc Corporation conducted an airborne gravity survey on their **Logan** deposit (Yukon MINFILE 105B 99). The Logan deposit is a structurally controlled vein and breccia zone within the mid-Cretaceous Marker Lake Batholith, and hosts a historical resource of 12 300 000 tonnes grading 6.17% Zn and 26.4 g/t Ag. The deposit is open at depth.

## BASE METALS – COPPER

Exploration for copper in Yukon was directed at a wide range of deposit models. Porphyry-related systems were the main target of exploration. Interest in this style of copper mineralization was generated by the successful exploration and development of several mineral occurrences such as the Jurassic Minto deposit in the Dawson Range, Cretaceous intrusive rocks near the Alaska/Yukon border, and Devonian to Mississippian meta-igneous intrusions to the south of Dawson City in the Stewart River map area. Iron oxide-copper-gold (IOCG) deposits continue to be

evaluated for their copper potential in northern Yukon. In the Whitehorse Copper Belt and other areas, skarn mineralization was the target for several exploration programs.

### PORPHYRY/SHEETED VEIN

The **Carmacks Copper** deposit (Yukon MINFILE 115I 008) of Western Copper Corporation ([www.westerncoppercorp.com](http://www.westerncoppercorp.com)) is located approximately 40 km southeast of the Minto deposit. Western Copper completed approximately 7200 m of drilling in 34 holes in order to infill, upgrade and expand existing oxide resources in the No. 1 zone (Fig. 32). Western Copper conducted additional drilling on other known zones in the deposit area. The company will use the new drilling data to update the historical oxide resource of 13.28 Mt of 0.97% Cu to meet 43-101 standards, as well as update a feasibility study that was completed in 1997. The Minto and Carmacks deposits are both hosted in Jurassic granodiorite. Both deposits bear similarities to porphyry and iron oxide-copper-gold deposits, however, the origin of the deposits is still subject to debate. Partial results from drilling of the No. 1 zone were received at year-end. Highlights include drillhole WC06-07 that intersected 16 m of remobilized mineralization in the hanging wall of the zone, which assayed 0.52% total Cu (0.46% non-sulphide Cu) and 0.22 g/t Au, in addition to 37 m of 2.29% total Cu (2.00% non-sulphide Cu) and 1.54 g/t Au. These grades are higher than those that were determined in adjacent, historical

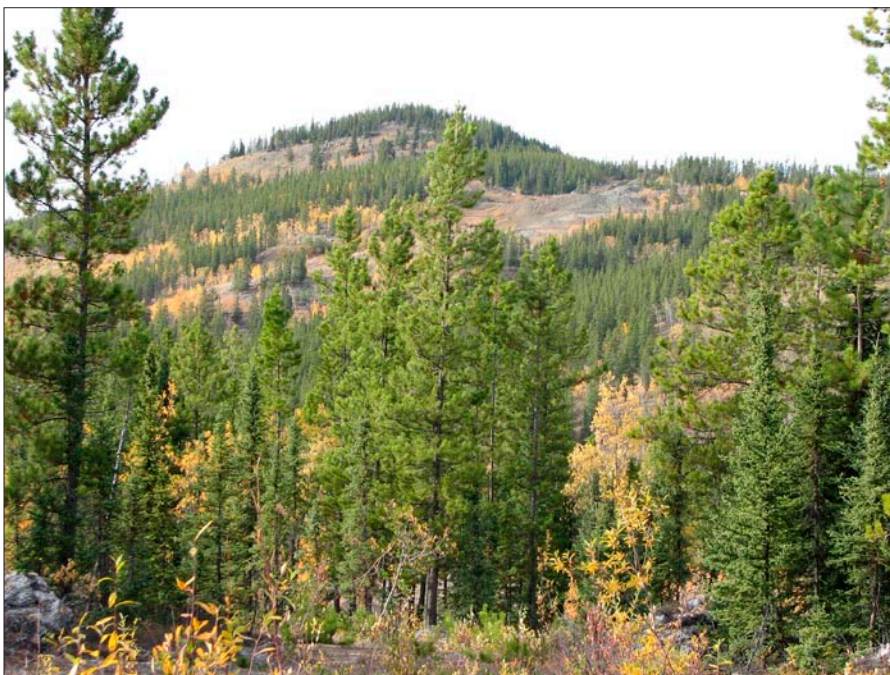
**Figure 32.** High-grade oxide copper (malachite) in core drilled in the No. 1 zone at the Carmacks Copper deposit.



drillholes. The company also drilled the deposit to depth below the oxide resources and intersected sulphide mineralization. The No. 13 zone, located 1 km south of the No. 1 zone (Fig. 33), was tested with 10 drillholes, of which seven of those intersected oxide and sulphide mineralization, in addition to native copper. Assay results from these drillholes were not available at year-end.

Copper Ridge Exploration ([www.copper-ridge.com](http://www.copper-ridge.com)) explored their **Lucky Joe** property and completed a program that included soil geochemistry, geophysics (IP) and diamond drilling. The planned 2000-m drill program was terminated early due to drill breakdowns, complicated drilling, difficulty securing a drilling contractor, and the onset of winter conditions. A total of 780 m of drilling in three holes was completed. Two targets were tested: the Bear Cub anomaly and the Ryan's Creek trend anomaly. The Bear Cub anomaly is defined by an 11.3-km-long trend of elevated copper and gold soil geochemical values, and coincident IP chargeability anomalies. The Ryan's Creek trend anomaly is parallel to, and 4 km east of, the Bear Cub anomaly; it is defined by a 7.2-km trend of similar copper values, but stronger gold soil geochemical values and coincident IP chargeability anomalies. The claims cover an area that contains an assemblage of metasedimentary and meta-igneous rocks of the Yukon-Tanana Terrane.

Partial results were available by year-end. One of the two holes from the Bear Cub drill program intersected good alteration and anomalous results from meta-igneous rocks, however, the hole was terminated before reaching its target depth. A single hole completed on the Ryan's Creek trend intersected moderately to strongly altered schist containing up to 2% pyrite and chalcopyrite. Within this zone, a 12-m intersection of mineralized rock was assayed at 0.36% Cu and 0.80 g/t Au, including 3.0 m of 0.23% Cu and 2.90 g/t Au. The hole was drilled on the southern end of the anomalous trend and the majority of the zone remains untested by drilling.



**Figure 33.** View of the stripped No. 1 zone looking north from the No. 13 zone at the Carmacks Copper deposit.

Atac Resources Ltd. ([www.atacresources.com](http://www.atacresources.com)) conducted an exploration program of geochemistry, prospecting, geological mapping and airborne geophysics (VTEM) on the **Nikki** property (Yukon MINFILE 115K 082), which is optioned to a private company. Interbedded, pyritic volcanic and sedimentary rocks are cut by a diorite stock, the core of which is composed of porphyritic monzonite to granodiorite. The porphyritic monzonite is weakly pyritic, and moderately chloritized and sericitized. Historical drilling from the early 1970s reportedly intersected mineralized rock grading about 0.13% Cu and 0.005% MoS<sub>2</sub>.

Strategic Metals Ltd. ([www.strategicmetalsltd.com](http://www.strategicmetalsltd.com)) completed an exploration program on the **Hopper** property (Yukon MINFILE 115H 018 and 019) that included geochemistry, geological mapping and prospecting. Historical work on the property has been directed at copper-gold skarn mineralization associated with an Early Tertiary hornblende-biotite granodiorite stock, but Strategic Metals is investigating the potential for porphyry-style mineralization.

H. Coyne and Sons, a private Whitehorse-based company, holds numerous mining claims and leases in the Whitehorse Copper Belt. The company conducted drilling on the **Hat** claims (Yukon MINFILE 105D 054) and in the **Best Chance/Grafter** areas (Héon, 2004; Fig. 34). On the Hat claims, previous drilling by the company has intersected high-grade, bornite-chalcopyrite skarn mineralization (4.99% Cu, 1.05 g/t Au and 40.3 g/t Ag over 10.6 m) and porphyry-style, sheeted quartz-bornite-chalcopyrite-molybdenite veins in granodiorite. Drilling in 2006 was directed at the porphyry-style mineralization, and additional vein and disseminated copper-molybdenum mineralization were discovered. Drilling at

**Figure 34.** Spring drilling on the Grafter copper-skarn deposit in the Whitehorse Copper Belt.



the Best Chance/Grafter intersected bornite-chalcopyrite skarn mineralization. Assay results were not available by year-end.

Arcturus Ventures Inc. ([www.arcturusventuresinc.com](http://www.arcturusventuresinc.com)) has staked claims in the **Lewes River** project area (Yukon MINFILE 105D 022), in the southern portion of the Whitehorse Copper Belt. The company conducted prospecting on porphyry and skarn targets.

### SKARN

Manson Creek Resources ([www.manson.ca](http://www.manson.ca)) conducted an exploration program of soil geochemistry and magnetic surveying on their **Cuprum** property (Yukon MINFILE 105E 008), located 50 km north of Whitehorse. The work by Manson Creek has outlined a coincident magnetic and copper-lead-zinc-silver geochemical anomaly that they plan on drill testing in 2007. Skarn mineralization on the property contains magnetite, and minor bornite and chalcopyrite, and was discovered in two areas. The skarn is associated with marble in deformed volcanic rocks that are in contact with biotite granite belonging to the Late Cretaceous Annie Ned pluton.

### WERNECKE BRECCIA

At least 65 iron oxide-copper-gold ± uranium ± cobalt (IOCG) prospects are associated with a large-scale Proterozoic breccia system in north-central Yukon. The breccia system, known as Wernecke Breccia, consists of numerous individual breccia bodies that occur in the Early Proterozoic Wernecke Supergroup, an approximately 13-km-thick deformed and weakly metamorphosed sequence of sedimentary rocks.

International KRL Resources Corp. ([www.krl.net](http://www.krl.net)) planned on a 15 000-m drill program, but was only able to complete a 9-hole, 1600-m drill program on the **Nor** property (Yukon MINFILE 106L 061). The property covers an area that encompasses a heterolithic, diatreme breccia body intruded into a fault-bounded outlier of Middle Proterozoic limy siltstone and argillite. The outlier is exposed through Cambrian limestone that unconformably overlies it. Drilling targeted a linear magnetic anomaly, outlined in 2005 on the Nor ridge, that has a coincident copper-uranium soil anomaly. Six of the nine holes intersected copper mineralization, of which the most significant mineral assay included 20 m of 0.25% Cu.

Copper Ridge Exploration ([www.copper-ridge.com](http://www.copper-ridge.com)) conducted an exploration program on their **Yukon Olympic** property (Yukon MINFILE 116G 082) and completed a magnetic, induced polarization and gravity survey to better define the existing circular magnetic and partially overlapping gravity anomaly identified in previous surveys. Furthermore, the company hoped to identify any near-surface sources of metallic mineralization. The survey defined three anomalous areas that warrant drilling.

Copper Ridge Exploration also conducted a program of geophysics including induced polarization and horizontal loop electromagnetics over a previously defined 4.5-mgal gravity anomaly on their **Ironman** property (Yukon MINFILE 116A 017). The surveys defined a zone of low resistivity and high conductivity underlying the gravity anomaly. The property hosts several zones of copper- and



gold-bearing hematite breccias around the periphery of the anomaly. The anomaly is covered by younger carbonate rocks.

## SEDIMENTARY

An interesting new occurrence is the **Tidd** property (Yukon MINFILE 105J 029) of Strategic Metals Ltd. ([www.strategicmetalsltd.com](http://www.strategicmetalsltd.com)) that has been optioned by Sedex Mining Corp. ([www.sedexmining.com](http://www.sedexmining.com)). The property is underlain by gently dipping sedimentary rocks identified by the company as the Cambrian to Ordovician Vangorda and Lower Cambrian Mt. Mye formations, the same stratigraphy that hosts the Faro sedimentary-exhalative deposits. The company performed a program of geochemistry, geophysics (airborne VTEM, ground magnetics), geological mapping, prospecting and diamond drilling in 2006. Mineralization is hosted within moderately to strongly brecciated, chlorite-sericite-altered and silicified sedimentary rocks and float samples. Samples from a 3000-m-long corridor of mineralized rock contain mineral assay values of up to 6.85% Cu, 411 g/t Ag, 0.34% Bi, 157 g/t In, 3.61% Pb and 2.39% Zn. Sawn channel sampling completed across the main showing included a mineral assay of 1.08% Cu, 68.53 g/t Ag, 46 g/t In and 0.02% Bi over 10.5 m. Results from the drilling program were not available by year-end.

## BASE METALS – NICKEL ± PLATINUM GROUP ELEMENTS (PGE)

Exploration for nickel was largely directed in the Kluane mafic-ultramafic belt in western Yukon. The Kluane region is within the Insular Superterrane, which is largely composed of Devonian to Triassic island arc and ocean floor volcanic rocks, and thick assemblages of overlying sedimentary rocks.

### MAFIC/ULTRAMAFIC

Coronation Minerals Inc. ([www.coronationminerals.com](http://www.coronationminerals.com)) has an agreement to purchase the **Wellgreen** deposit (Yukon MINFILE 115G 024) from Northern Platinum Ltd. The Wellgreen deposit hosts a historical resource of 50 million tonnes grading 0.36% Ni, 0.35% Cu, 0.54 g/t Pt and 0.34 g/t Pd. This company initiated a program of diamond drilling that was designed to twin historical drilling, as well as to upgrade the resource to comply with National Instrument 43-101 standards. Partial drill results were available at year-end and included hole WS06-149 that intersected 92.17 m of mineralized rock grading 0.26% Ni, 0.38% Cu, 0.61 g/t Pt, 0.40 g/t Pd, 0.11 g/t Au and 177 ppm Co, including 21.36 m grading 0.23% Ni, 0.62% Cu, 1.01 g/t Pt, 0.54 g/t Pd, 0.22 g/t Au and 180 ppm Co. Hole WS06-153 was drilled to test a historical hole; mineral assay results from the new hole were similar to historical results. Drillhole WS06-153 was extended to a far greater depth (480 m) compared to the historical drillhole when it was discovered that the ultramafic rocks continued to depth. Mineral assay results from the deeper ultramafic intersection were not available at year-end.

Golden Chalice Resources ([www.goldenchalicesources.com](http://www.goldenchalicesources.com)) optioned the **Burwash** property (Yukon MINFILE 115G 100) from Strategic Metals Ltd. and performed an exploratory program of airborne geophysics (VTEM), geological mapping, prospecting and soil sampling. The property is located adjacent to the

Wellgreen property. The Burwash property hosts similar mineralization and grades to those that have been discovered on the Wellgreen property during previous drill programs.

The **Canalask** property (Yukon MINFILE 115F 045) was optioned from StrataGold Corporation ([www.stratagold.com](http://www.stratagold.com)) by Falconbridge Ltd. (now Xstrata). The property is located in the Kluane mafic-ultramafic belt and has a small historical resource of 390 235 tonnes grading 1.35% Ni. The company staked claims to the northwest and southeast along the belt. Airborne geophysics, prospecting and geological mapping were completed in the 2006 program.

A new nickel occurrence was discovered in 2004 by True North Gems ([www.truenorthgems.com](http://www.truenorthgems.com)) while exploring for gemstones. The **Bandito** property (Yukon MINFILE 95C 051) has previously been explored for uranium and rare-earth elements. The claims cover an area that encompasses a syenitic stock of probable Cretaceous age. The syenitic stock intrudes Proterozoic green argillite and quartzite that is unconformably overlain by Cambrian or younger boulder conglomerate. True North Gems completed a program of airborne geophysics (time-domain electromagnetics and magnetometer), geological mapping, geochemistry, prospecting and sampling on the property in 2006. Geochemical sampling outlined an area 750 m by 600 m that contains up to 2860 ppm Ni, 4740 ppm Cu, 4670 ppm Pb, 2150 ppm Zn, 346 ppm Co, 277 ppm Bi and 736 ppm As. Float samples collected on the property have been assayed and have values in the range of 7.08% to 15.85% Ni. The predominant minerals are within oxide-cemented breccias and veins, and include abundant green annabergite (also known as nickel bloom), malachite, azurite, pyrite and chalcopyrite.

## BASE METALS – TUNGSTEN ± MOLYBDENUM

Yukon and the adjacent Northwest Territories are known to have a high number of tungsten occurrences and deposits. Exploration for tungsten focused on scheelite-bearing skarn deposits developed in Paleozoic carbonate rocks of the Selwyn Basin at, or near, their contact with felsic intrusions of the mid-Cretaceous Tungsten or Tombstone plutonic suites. Exploration for tungsten also targeted scheelite and wolframite-bearing quartz-molybdenite stockwork and veins developed in, or near, Late Cretaceous/Early Tertiary felsic intrusions of the Cassiar suite.

### SKARN

North American Tungsten ([www.natungsten.com](http://www.natungsten.com)) continued with environmental baseline studies at their **MacTung** deposit (Yukon MINFILE 105 002), one of the largest tungsten deposits in the world. The company is in the process of updating the historical resource of 30 million tonnes of 0.94% WO<sub>3</sub>. Results from drilling in 2005 will conform to National Instrument 43-101 standards. The new resource will allow the company to update previous technical and feasibility work completed on the MacTung deposit.

Playfair Mining Ltd. ([www.playfairmining.com](http://www.playfairmining.com)) conducted a 6-hole, 755-m drill program on the **Risby** deposit (Yukon MINFILE 105F 034) in south-central Yukon. Garnet-diopside-pyrrhotite-scheelite skarn occurs in Cambrian carbonate rocks intruded by a mid-Cretaceous quartz monzonite pluton of the Cassiar Suite. Drilling was completed in the area where a historical resource of 2.7 Mt grading

0.81%  $\text{WO}_3$  was outlined by Hudson Bay Mining and Smelting in 1982. Four drillholes were completed and intersected significant mineralization, highlighted by intersections such as that found in drillhole RT06-05 containing a mineral assay of 6.49 m grading 1.09%  $\text{WO}_3$ . Two drillholes were not completed and thus did not intersect the target mineralization.

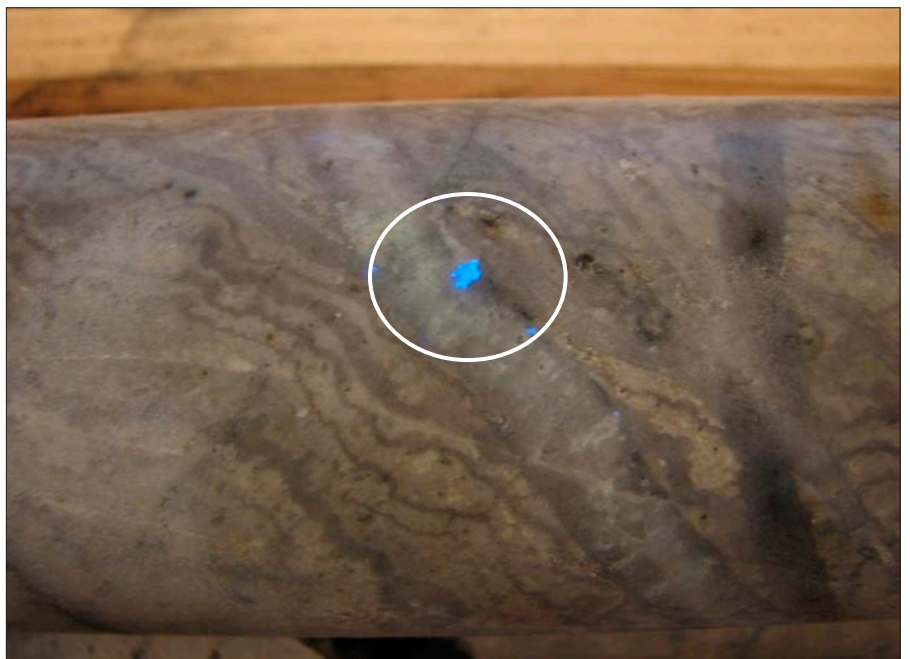
### PORPHYRY/SHEETED VEIN

Largo Resources ([www.largoresources.com](http://www.largoresources.com)) optioned the **Logtung** deposit (Yukon MINFILE 105B 039) from Strategic Metals Ltd., and refers to the project as the **Northern Dancer**. The Logtung deposit is the world's largest intrusion-hosted tungsten deposit. The Logtung deposit has scheelite- and molybdenite-bearing quartz veins hosted in a high-level felsic intrusion of the Cassiar Suite. The company completed a 17-hole, 3945-m diamond drill program that was designed to upgrade the historical resource of 162 Mt grading 0.13%  $\text{WO}_3$  and 0.052% Mo to meet National Instrument 43-101 standards. The drilling was also completed in order to determine if a higher grade core of tungsten and/or molybdenum mineralization could be defined. The deposit contains numerous stages of veining. Current drill results suggest that a late-stage, near vertical, sheeted-quartz-vein array may not have been adequately tested by historical drilling, and that a higher-grade tungsten core may exist within the deposit. Highlights from drilling include better-than-average molybdenum grades that consist of 134.51 m of 0.13%  $\text{MoS}_2$  and 0.04%  $\text{WO}_3$  in drillhole LT06-70, and 52.00 m of 0.14%  $\text{MoS}_2$  and 0.07%  $\text{WO}_3$  in drillhole LT-06-63. Significant tungsten-rich (Fig. 35) mineralized intersections in drillholes include the following: 114.95 m grading 0.16%  $\text{WO}_3$  and 0.08%  $\text{MoS}_2$ , including 12.22 m grading 0.54%  $\text{WO}_3$  and 0.19%  $\text{MoS}_2$  in drillhole LT-06-66; and 83.89 m grading 0.20%  $\text{WO}_3$  and 0.04%  $\text{MoS}_2$  in drillhole LT-06-68 (Fig. 36). The upgraded resource



**Figure 35.** Molybdenum on a fracture in core from the Logtung deposit.

**Figure 36.** Fluorescent scheelite in core under ultraviolet light from the Logtung deposit.





**Figure 37.** Drilling at the Tootsee River tungsten-molybdenum project.

calculation will be used in a scoping study on the deposit. Drilling in 2007 will test the higher grade tungsten core of the deposit.

The **Tootsee River** project (Yukon MINFILE 105B 089) was optioned by Cumberland Resources ([www.cumberlandresources.com](http://www.cumberlandresources.com)) from North American Tungsten Corporation. The company performed an airborne geophysical survey (magnetometer) and a diamond-drill program (Fig. 37) of three holes totaling 1496 m. Historical drilling in the early 1980s identified scheelite and molybdenite mineralization in stockwork. Scheelite and molybdenite were also identified in green calc-silicate hornfels near small dykes and porphyry bodies related to the Cretaceous Cassiar Batholith. Results from the program were not available at year-end.

## BASE METALS – MOLYBDENUM

### PORPHYRY/SHEETED VEIN

Tintina Mines Ltd. ([www.tintinamines.com](http://www.tintinamines.com)) conducted environmental and geotechnical studies on their **Red Mountain** project (Yukon MINFILE 105C 009). Red Mountain contains a historical resource (non 43-101 compliant) of 187 Mt grading 0.167% Mo, and a higher grade core of 21.3 Mt grading 0.293% Mo. The company conducted geotechnical studies, and cleared along the existing and proposed access and haulage route into the deposit. In addition, the company performed geotechnical, engineering, geological, environmental and hydrological studies required to test the potential portal and infrastructure sites associated with the deposit.

## BASE METALS – TIN

### SKARN

Brett Resources Inc. ([www.brettresources.com](http://www.brettresources.com)) explored the **JC** tin deposit (Yukon MINFILE 105B 040) and completed an exploration program of geological mapping and sampling, and ground-based magnetometer surveying. The tin-bearing, calc-silicate skarn mineralization occurs along the western margin of the Cretaceous Seagull Batholith. Mineral assay values from trenching include one interval of 3 m of 0.87% Sn in one trench, and another trench containing 1.5 m of 0.93% Sn, including 0.15 m of 4.04% Sn.

## URANIUM

Uranium exploration in Yukon peaked in the early 1980s. Until recently, no new exploration or research had been undertaken for over 20 years. Renewed interest in uranium is slowly filling in the knowledge gap. A flurry of uranium exploration activity occurred in the past year. Roughly \$12 million was spent on uranium targets in 2006. Yukon is highly prospective for uranium. Four main deposit types were explored this past season and include Wernecke Breccia-associated (iron oxide-copper-gold + uranium-type), fault/shear-associated (possible unconformity-related), intrusion-related, and volcanic-related uranium deposits.

The Wernecke Mountains, north of Mayo, was the main area targeted for uranium exploration. Areas of exposure of Wernecke Breccia have been explored in recent years, mainly for their copper-gold content, however, in the last year, a significant amount of claim-staking has occurred based on the uranium potential of these breccia bodies. Unconformity-related uranium potential has also been recognized within Wernecke Supergroup (Hunt, 2006). All the companies active in the Wernecke Mountains have recognized this potential, and future exploration programs may include the drilling of potential unconformity-related targets.

### WERNECKE BRECCIA

Cash Minerals Ltd. ([www.cashminerals.com](http://www.cashminerals.com)) and Twenty Seven Capital Corp. ([www.27capitalcorp.com](http://www.27capitalcorp.com)) formed a joint venture called the Yukon Uranium Project (YUP) in order to conduct several exploration programs on properties in the Wernecke Mountains area. A 19-hole, 3004-m diamond drill program was completed on the **Igor** property (Yukon MINFILE 106E 009) in 2006. Results from this drill program were not available at year-end. Exploration drilling at Igor in 2005 included a 74.44-m drillhole intersection, which averaged 0.069%  $U_3O_8$  (1.4 pounds-per-ton  $U_3O_8$ ) and 1.88% Cu in an iron oxide-copper-gold (IOCG) breccia. Cash Minerals has also retained Dr. Geordie Mark, an IOCG geological specialist from Australia, who is conducting mapping, core evaluation, magnetic survey analysis and the construction of geological models associated with Olympic Dam-type characteristics on the Igor and other Wernecke Breccia-related properties being explored by the YUP (Fig. 38).

Other work completed by YUP in 2006 included 2340 m of diamond drilling in 10 holes at other properties in the Wernecke Mountains, structural and stratigraphic mapping, ground and helicopter-borne radiometric and gravity surveys, and airborne magnetic surveys. This extensive regional exploration program led to the claim staking of approximately 80 000 hectares in 2006. Yukon Uranium Project now holds 19 properties in the Wernecke Mountains.



**Figure 38.** Lara Lewis of Yukon Geological Survey examines a uranium-bearing outcrop in Wernecke Breccia on the Igor property.



**Figure 39.** Geologists examine a uranium-bearing outcrop on Slab Mountain.

conducted geological mapping, geochemical sampling and prospecting, and completed a 9750-line-km airborne gravity survey. The companies also carried out additional claim staking and increased their landholdings in the district to encompass 24 properties, an area of approximately 40 000 hectares. The exploration was staged from the **Slab** (Fig. 39) property (Yukon MINFILE 106D 070).

The program resulted in the discovery of several new areas of mineralization. The **Thunder Mountain** property is a new gold-uranium-copper discovery. A total of 25 samples were collected over an area of approximately 400 m by 550 m. Carbonate-iron oxide-potassium feldspar-altered heterolithic (siltstone, dolostone) breccia boulders assayed up to a spectacular 99.2 g/t Au, 0.57%  $U_3O_8$  and 5.1 g/t Ag. Copper-bearing breccia in the same area assayed up to 6.88% Cu, 13 g/t Ag and 1.1 g/t Au. The **Fireweed** prospect is a new uranium occurrence. Ninety-three boulders of iron oxide-potassium feldspar-silica-altered chlorite schist (Fig. 40) were collected over a 200-m by 400-m area and averaged 0.22%  $U_3O_8$ . Twenty-two samples assayed in excess of 0.14%  $U_3O_8$ , up to a maximum value of 5.55%  $U_3O_8$ . Five select grab samples were collected in the same area, one of which assayed 0.854 g/t Au and another assayed 1.53% Cu. The **Hail** prospect is defined by uranium-bearing boulders that occur over an area measuring at least 160 m by 60 m. Seventeen boulders were sampled and have an average grade of 0.15%  $U_3O_8$ , and a maximum value of 0.30%  $U_3O_8$ . At the Hail West copper-gold-silver prospect, mineralized rock was sampled in outcrop over an area 200 m in length. One select sample, taken from an outcropping chalcopyrite-bearing vein approximately 30 cm wide, assayed 24.5% Cu, 2.45 g/t Au and 62.50 g/t Ag. Three other grab samples taken from outcropping veins ranged from 0.02 to 4.12 g/t Au and 0.16 to 7.18% Cu. The **Pagisteel fault** prospect is a regional-scale structure that follows a broad, northeast-trending valley that has no outcrop, but extensive soil development. A soil geochemical survey was carried out over a 2.5-km-long section

Fronteer Development Group Inc. ([www.fronteergroup.com](http://www.fronteergroup.com)) and Rimfire Minerals Corporation ([www.rimfire.bc.ca](http://www.rimfire.bc.ca)) formed a joint venture from Newmont Exploration Canada Ltd. and NVI Mining Ltd., a subsidiary of Breakwater Resources Ltd. The joint-venture companies acquired mineral claims and a proprietary geoscience dataset covering a large region of the northern Yukon that includes the Wernecke Breccias. The dataset covers 5000 km<sup>2</sup> and includes airborne radiometric and magnetic surveys, geological and geochemical surface sample data, as well as geological data from 14 600 m of drilling. During the 2006 field season, the companies investigated 48 target areas,

of this fault. Twenty-six float samples were collected within the soil grid area and they showed elevated copper and gold values. One of these samples was assayed at 5.75% Cu, 1.24 g/t Au and 5.75 g/t Ag.

**FAULT/SHEAR-ASSOCIATED**

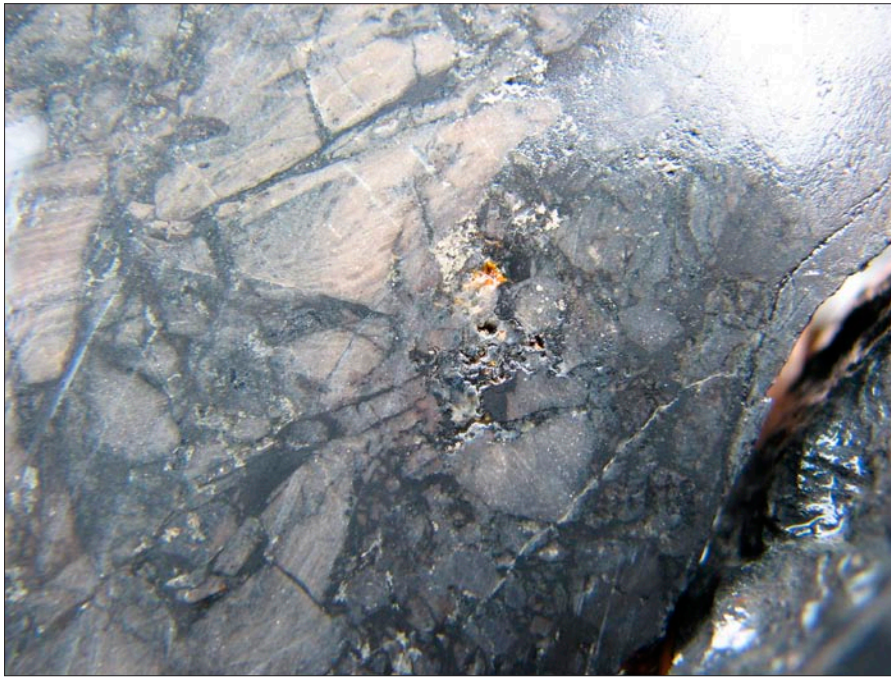
The Yukon Uranium Project of Cash Minerals Ltd. and Twenty Seven Capital Corp. conducted a drill program on the **Lumina** project (Yukon MINFILE 106C 069). Fourteen of the nineteen drillholes (Fig. 41) from the Lumina project (Jack Flash showing) intersected uraniumiferous intervals within variably brecciated and altered siltstone-dominant strata. The altered siltstone was mapped by the company as Lower Proterozoic Fairchild Lake Group. The most radioactive material was localized at what has been interpreted to be a redox interface, where uranium mineralization within hydrothermal water has concentrated in fracture zones (Fig. 42). Strongly brecciated strata that underlie the mineralization are bleached and commonly hematite-bearing, while the overlying, less-brecciated strata are relatively unaltered. Regional mapping has identified a



**Figure 40.** Iron oxide-potassium feldspar-silica-altered chlorite schist from the newly discovered Fireweed prospect in the Wernecke Mountains.



**Figure 41.** Helicopter supported, low-impact drillings on Lumina property.



**Figure 42.** High-grade uranium mineralization within brecciated siltstone in core from the Lumina property.

**Figure 43.** The excavated Deer showing at the Curie project in the Wernecke Mountains.



structural corridor which controls the mineralization at the Jack Flash and other showings on the property. The uranium mineralization associated with the controlling structures may have been remobilized and is related to a potential unconformity-related source at depth. Highlights from drilling include drillhole L06-07 containing 27.01 m grading 0.203%  $U_3O_8$ , including 17.04 m grading 0.290%  $U_3O_8$ ; drillhole L06-09 containing 0.030%  $U_3O_8$  over 21.71 m, including 0.161%  $U_3O_8$  over 1.48 m; and drillhole L06-11 containing 0.287%  $U_3O_8$  over 2.15 m. In addition, surface samples from outcrops, subcrops and boulders were collected over an area of about 50 km<sup>2</sup> in the central and northern part of the Lumina property. These samples were

assayed and contained up to 1.82%  $U_3O_8$ . The joint venture companies also flew an airborne radiometric survey of 1178-line-km that has identified over 90 new radiometric anomalies at the Lumina property.

Signet Minerals ([www.signetminerals.ca](http://www.signetminerals.ca)) completed an exploration program of geological mapping, sampling, prospecting, kubota trenching, airborne geophysics (magnetometer, electromagnetics and radiometrics) and a ground-based gravity survey on the **Curie** project. Based on the airborne surveys, the company carried out additional claim staking in the region, bringing their total landholdings in the

district to 25 000 ha. The property encompasses many known uranium occurrences (Yukon MINFILE 106E 003, 006, 011, 022, 026, 027, 028, 029, 030, 031 and 040) that were re-sampled, confirming historical uranium and copper-gold mineralization. An airborne geophysical survey has identified a 20-km-long, regional-scale, linear magnetic anomaly that is associated with several of the known uranium showings on the property. Kubota trenching was completed at the **Deer** showing (Yukon MINFILE 106E 031), where previous grab samples assayed up to 54.3%  $U_3O_8$ . The trenching revealed a highly tectonized mineralized zone composed of a hanging-wall sequence of pink, potassic-altered siltstones, a central, 1- to 2-m-wide chloritic shear



zone, and a footwall sequence of bleached and sericitized siltstones with radioactive stringers and veins (1-10 cm). Limited chip samples of the zone were assayed at up to 0.84%  $U_3O_8$  over 1.0 m (Fig. 43). The Deer showing is interpreted as a potential leakage zone from unconformity-related mineralization, or an unexposed Wernecke Breccia (iron oxide-copper-gold target) at depth.

## INTRUSION-RELATED

The **Murphy** project (Yukon MINFILE 105F 079) is located approximately 85 km northeast of Whitehorse. Signet Minerals optioned the property from Twenty Seven Capital Corp. ([www.27capitalcorp.com](http://www.27capitalcorp.com)) and completed an exploration program on the property that included an airborne radiometrics survey and ground-based magnetic and electromagnetic surveys, followed by diamond drilling. The property is underlain by a Cretaceous granitic batholith of the Cassiar Suite. Previous work had found anomalous uranium (up to 0.23%  $U_3O_8$ ) associated with more biotite-rich phases of the intrusion. The drilling program began in October and was suspended due to weather conditions after completing approximately 1/3<sup>rd</sup> of the planned 1000-m drill program. Results were not available at year-end.

Cash Minerals Ltd. and joint venture partner, Twenty Seven Capital Corp., explored the **Pedlar** property (Yukon MINFILE 115J 092) in central Yukon and completed a program of reverse-circulation drilling. The claims cover an area encompassing quartzite and schist cut by a small, unmapped body of Cretaceous Coffee Creek granite. Uranium values up to 304 ppb were obtained from water in the main stream draining the property. Results from the drill program were reported to be unsatisfactory.

## VOLCANIC-RELATED

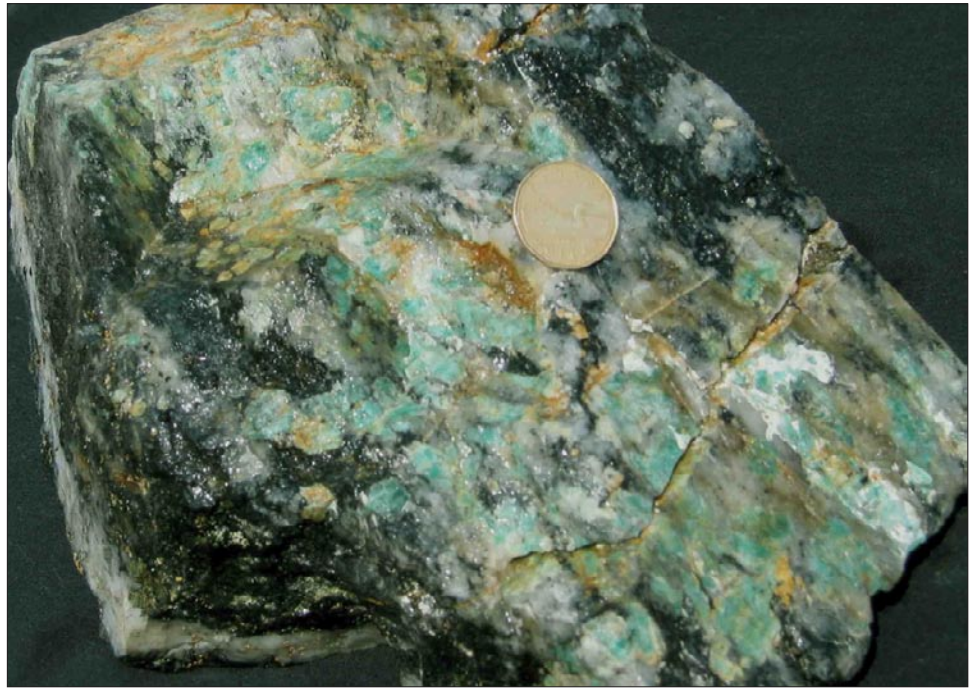
Cash Minerals Ltd. and joint venture partner, Twenty Seven Capital Corp., also explored the **Hot Dog** property (Yukon MINFILE 115H 014) and completed a radon gas survey and diamond drill program. The drilling was directed toward a radioactive zone in a regolith, which formed at the contact between an Early Jurassic granodiorite and overlying Eocene volcanic flows. Results of the drilling were not available at year-end.

## GEMSTONES

### VEIN/BRECCIA-ASSOCIATED

True North Gems Inc. ([www.truenorthgems.com](http://www.truenorthgems.com)) completed a program of detailed geological and structural mapping, accompanied by trenching, on several existing and newly discovered emerald-bearing zones on the **Tsa Da Glisza** property (Yukon MINFILE 105G 147). The focus of the program was to collect enough data on the Summit zone to support an independent resource calculation and pre-feasibility study. Re-logging and a petrographic analysis of previous drill core were also completed in order to better define structural relationships and alteration patterns. Exploration in 2005 resulted in the discovery of new emerald-bearing veins in the Summit and Far West zones, and better delineation of the geochemical anomalies (Be, Sn, W, Cs, Bi, Cu) that reflect emerald potential. The largest and strongest geochemical response was in the Otter zone, an area to the north of the known emerald occurrences in the Summit and Shadow zones, which has a similar,

**Figure 44.** Emerald-bearing boulder from the Shadow zone at the Tsa da Glisza project.



but weaker, geochemical response. The company also announced their 2005 exploration results that included the recovery of emeralds measuring up to 15 mm by 50 mm in the Southwest vein. Results from the processing of the 2005-mined and 2002-2004-stockpiled material produced 763.77 g of gem-, 6348.09 g of near-gem-, and 3648.29 g of non-gem-grade emeralds, a significant increase in the proportion of gem and near-gem material over previous sampling. A total of 9402 g of gem and near-gem emerald rough were shipped for cutting (Fig. 44).

## COAL

Cash Minerals Ltd. completed a feasibility study on the **Division Mountain Coal** project (Yukon MINFILE 115H 013) that is located 20 km west of Highway 2 and Yukon's main power grid, and 300 km from the closest tidewater port at Skagway, Alaska. The feasibility study concluded that current conditions do not support the development of a mine to serve the export coal market, however, it does identify the upside potential of the Division Mountain Coal project. Potential developments which could lead to an increased project value may include:

- more cost-effective operations as a result of more detailed resource information and detailed mine planning;
- increase in potential production to meet increased industrial demand in the region; and
- discovery of further reserves of PCI- (Pulverized Coal Injection) and/or metallurgical-grade coal. This could lead to additional markets.

The feasibility study confirmed that it is technically and economically feasible to develop an open-pit mine that will produce 240 000 tonnes of unwashed coal per year over a 20-year period. The product would be sold to a potential 50-megawatt (net) mine-mouth power station located adjacent to the Division Mountain

property. The mine feasibility study was completed by Norwest Corporation, a leading North American coal and energy engineering consultancy based in Salt Lake City, Utah. In conjunction with the Division Mountain mine feasibility study, Cash Minerals also commissioned a preliminary pre-feasibility study on the potential mine-mouth coal-fired electricity generating plant located adjacent to the mine. The study estimates an operating cost of 12.2 cents per kilowatt hour (2006 cost basis).

Measured coal resources at Division Mountain from the 2005 National Instrument 43-101 report by Norwest Corporation are 52.5 mT. In 2006, exploration drilling was completed on a number of targets in this area. Coal-bearing stratigraphy was confirmed at Cub Mountain (adjacent to Division Mountain) and Tantalus Butte (northeast of Carmacks). A number of very encouraging coal intersections were achieved at the Corduroy Mountain property, which is located 10 km east of Division Mountain. Four holes were completed, with all holes intersecting multiple seams, ranging from 0.50 m to 5.65 m (Fig. 45). The 5.65-m-intersection was found in drillhole 06-99. Coal-quality analyses from the four coal intersections from this hole are reported in Table 3.



**Figure 45.** Coal seam in core from the Corduroy Mountain property near Division Mountain.

Santoy Resources Ltd. and 50/50 partner Almaden Minerals Ltd. conducted a 2-hole, 888-m drill program on the **Rock River** coal project (Yukon MINFILE 95D 026) in southeastern Yukon. The project encompasses a Tertiary coal deposit which ranges from lignite A- to sub-bituminous C-rank based on limited historical work. The objective of the program was to drill deeper into the basin in order to test for continuity of the previously discovered thermal coal. Results were not available by year-end.

**Table 3.** Data from Hole 06-99, Corduroy Mountain.

Intersection from (m)		Width (m)	Ash AD*%	Fixed carbon AD%	Moisture AD%	Moisture Total%	Sulphur AD%	Volatile matter AD%	Kcal/Kg AD%
74.42	75.83	1.41	19.02	49.27	0.99	3.43	0.49	29.24	5959
76.02	77.43	1.41	24.54	45.57	1.15	3.51	0.42	27.50	5464
96.26	101.91	5.65	23.13	44.09	0.58	2.67	0.54	30.67	5608
105.16	109.50	4.34	18.93	49.83	0.56	2.49	0.48	29.29	6026

\*AD is air dried

## ACKNOWLEDGEMENTS

This report is based on public information gathered from a variety of sources. It also includes information provided by companies through press releases, personal communications, and property visits conducted during the 2006 field season. The cooperation of companies and individuals in providing information, as well as their hospitality, time, and access to properties during field tours, is gratefully acknowledged.

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## APPENDIX 1: 2006 EXPLORATION PROJECTS

Project name	Company	Minfile no.	NTS	Work type	Primary commodity	Deposit
<b>PRECIOUS METALS – GOLD</b>						
<b>Ketza River</b>	YGC Resources Ltd.	105F 019		P,G,GC,T,DD,PF	Au	skarn/ replacement
<b>Skukum Creek</b>	Tagish Lake Gold Corp.	105D 022A		G,DD,UG,PF	Au	vein/breccia
<b>Lone Star</b>	Klondike Star Mineral Corp.	115O 072		P,G,GP,GC,T,DD,BS	Au	vein/breccia
<b>Dublin Gulch</b>	StrataGold Corp.	106D 025		P,G,GC,T,DD	Au	porphyry/ sheeted vein
<b>Golden Revenue</b>	Northern Freegold Resources/ Atac Resources	115I 042		P,G,AGP,DD	Au	porphyry/ sheeted vein
<b>Sonora Gulch</b>	Firestone Ventures Inc.	115J 008		P,G,AGP,GC,DD	Au	porphyry/ sheeted vein
<b>Mike Lake</b>	Dynamite Resources Ltd.	116A 012A		G,AGP,GC,DD	Au	porphyry/ sheeted vein
<b>Brewery Creek</b>	Alexco Resource Corp.	116B 160		G,DD	Au	porphyry/ sheeted vein
<b>Red Mountain Gold</b>	Regent Ventures Ltd.	115P 006		G,AGP,DD	Au	porphyry/ sheeted vein
<b>Shell Creek</b>	Logan Resources Ltd.	116C 029		G,GP,GC,DD	Au	vein/breccia
<b>Idaho Creek</b>	Klondike Silver Corp./ Atac Resources	115J 099		P,G,GP,DD	Au	vein/breccia
<b>Moosehorn</b>	Mountain Rio Resources	115N 024		P,G,GC,T,DD	Au	vein/breccia
<b>Heidi</b>	Logan Resources Ltd.	116A 037		G,DD	Au	porphyry/ sheeted vein
<b>Dominion</b>	Klondike Star Mineral Corp.	115O 066		P,G,GC,T,BS	Au	vein/breccia
<b>Mount Hinton</b>	Yukon Gold Corp.	105M 052		P,G,GC,RC	Au	vein/breccia
<b>Scheelite Dome</b>	Copper Ridge Exploration Inc.	115P 004		P,G,GP,GC,T	Au	skarn/ replacement
<b>Eureka</b>	Strategic Metals Ltd.	115O 057		G,T,DD	Au	vein/breccia
<b>Grew Creek</b>	Freegold Ventures Ltd.	105K 009		G,DD	Au	vein/breccia
<b>Cheyenne</b>	Logan Resources Ltd.	116B 096		P,G,GC,	Au	skarn/ replacement
<b>Arn</b>	Golden Reign Resources Ltd./ Atac Resources	115F 048		P,G,AGP,GC	Au	skarn/ replacement
<b>Panorama</b>	Atac Resources Ltd.	116A 031		P,G,AGP,GC,T	Au	porphyry/ sheeted vein
<b>Crown Jewel</b>	International Gold Resources Inc.	115O 139		P,G,GC	Au	vein/breccia
<b>Klaza</b>	Bannockburn Resources Ltd./ Atac Resources	115I 067		P,G	Au	vein/breccia

**Abbreviations**

AGP – airborne geophysics

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GC – geochemistry

GP – geophysics

M – mining

P – prospecting

PD – percussion drilling

PF – prefeasibility

R – reconnaissance

RC – reverse circulation drilling

T – trenching

U/GD – underground development

## Appendix 1 (continued): 2006 EXPLORATION PROJECTS

Project name	Company	Minfile no.	NTS	Work type	Primary commodity	Deposit
<b>Clear Creek</b>	StrataGold Corp.	115P 023		P,G,GC,T	Au	porphyry/ sheeted vein
<b>Spice</b>	Klondike Gold Corp./ Tanana Exploration Inc.	105G 150		P,G,GC	Au	vein/breccia
<b>Mahtin</b>	International Gold Resources Inc.	115P 007		AGP	Au	porphyry/ sheeted vein
<b>Bonanza</b>	International Gold Resources Inc.	115 080		P,GC	Au	vein/breccia
<b>Tinta Hill</b>	Northern Freegold Resources	115I 058		P,G,GC	Au	vein/breccia
<b>Hartless Joe</b>	New Shoshoni Ventures Ltd./ Atac Resources	105D 203		P,AGP	Au	vein/breccia
<b>Byng</b>	New Shoshoni Ventures Ltd./ Atac Resources	105D 184		P,AGP	Au	vein/breccia
<b>Horn</b>	Ryanwood Explorations	New	105H/15	P,GP,GC	Au	vein/breccia
<b>King Solomon Dome</b>	Klondike Star Mineral Corp./ JAE Resources Inc.	115O 068		P,G,GC,T	Au	vein/breccia
<b>Typhoon</b>	Curlew Lake Resources Inc.	115P 060		G,GP,GC	Au	porphyry/ sheeted vein
<b>Sey</b>	Northern Freegold Resources/ Atac Resources	115I 121		P,G,GC	Au	vein/breccia
<b>Goldy</b>	Northern Freegold Resources	115I 112		AGP	Au	vein/breccia
<b>Goldstar</b>	Northern Freegold Resources	115I 053		AGP	Au	skarn/ replacement
<b>Glen</b>	Northern Freegold Resources	115I 120		AGP	Au	vein/breccia
<b>Happy</b>	Northern Freegold Resources	115I 106		P,G	Au	vein/breccia
<b>Nitro</b>	Northern Freegold Resources	115I 038		P,G	Au	porphyry/ sheeted vein
<b>PRECIOUS METALS – SILVER</b>						
<b>Keno Hill</b>	Alexco Resource Corp.	105M 001		P,G,AGPT,DD	Ag	vein/breccia
<b>CMC Silver (Silver Hart)</b>	CMC Metals Ltd.	105B 021		P,G,T,DD	Ag	vein/breccia
<b>Touchdown</b>	Valencia Ventures Inc./ Strategic Metals	105B 022		P,G,GC,T	Ag	skarn/ replacement
<b>Blue Heaven</b>	Valencia Ventures Inc./ Strategic Metals	105B 020		P,G,GC,T,DD	Ag	vein/breccia
<b>Qb</b>	Valencia Ventures Inc./ Strategic Metals	105B 098		P,G,T	Ag	vein/breccia
<b>Stump</b>	Klondike Silver Corp.	105F 056		P,G	Ag	vein/breccia
<b>Connaught</b>	Klondike Silver Corp./ Atac Resources	115N 040		P,GP,GC,T,RC	Ag	vein/breccia

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U/GD – underground development

## Appendix 1 (continued): 2006 EXPLORATION PROJECTS

Project name	Company	Minfile no.	NTS	Work type	Primary commodity	Deposit
<b>Clark-Cameron</b>	CMC Metals Ltd./ Tanana Exploration Inc.	106D 011		AGP	Ag	vein/breccia
<b>Logjam</b>	CMC Metals Ltd.	105B 038		P,G,GC	Ag	vein/breccia
<b>End Zone</b>	Valencia Ventures Inc./ Strategic Metals	105B 101		P,G,GC	Ag	skarn/ replacement
<b>Pigskin</b>	Valencia Ventures Inc./ Strategic Metals	105B 107		P,G	Ag	vein/breccia
<b>BASE METALS – ZINC-LEAD</b>						
<b>Selwyn Project</b>	Pacifica Resources Ltd.	105I 012		P,G,GC,DD	Zn-Pb	sediment associated
<b>Blende</b>	Eagle Plains Resources Ltd./ Blind Creek Resources	106D 064		P,G,GC	Zn-Pb	vein/breccia
<b>Marg</b>	Yukon Gold Corp. Inc.	106D 009		G,AGP,DD	Zn-Pb	volcanic associated
<b>Wolverine</b>	Yukon Zinc Corp.	105G 072		F	Zn-Pb	volcanic associated
<b>Magnum</b>	Klondike Silver/ Strategic Metals Ltd.	116C 118		G,AGP,DD	Zn-Pb	volcanic associated
<b>Ultra</b>	Klondike Star Mineral Corp.	115B 008		P,G,GC	Zn-Pb	volcanic associated
<b>Swift</b>	Yukon Zinc Corp.	105B 027		AGP	Zn-Pb	sediment associated
<b>Pelly Mountain VMS</b>	Eagle Plains Resources Ltd.	105F 012		P,G,AGP,GC,T	Zn-Pb	volcanic associated
<b>Logan</b>	Yukon Zinc Corp.	105B 099		AGP	Zn-Pb	vein/breccia
<b>BASE METALS – COPPER</b>						
<b>Minto</b>	Sherwood Copper Corp.	115I 021		G,GP,GC,T, DD,RC,PF,D	Cu	porphyry/ sheeted vein
<b>Carmacks Copper</b>	Western Copper Corp.	115I 008		G,DD	Cu	porphyry/ sheeted vein
<b>Nor</b>	International KRL Resources Corp.	106L 061		P,G,DD	Cu	Wernecke Breccia
<b>Tidd</b>	Sedex Mining Corp./ Strategic Metal	105J 029		P,G,AGP,GP, GC,T,DD	Cu	sediment associated
<b>Lucky Joe</b>	Copper Ridge Exploration Inc.	115O 051		G,GP,DD	Cu	porphyry/ sheeted vein
<b>Nikki</b>	ATAC Resources Ltd.	115K 082		P,G,AGP,GC,T	Cu	porphyry/ sheeted vein
<b>Ironman</b>	Copper Ridge Exploration Inc.	116A 017		G,GP,GC	Cu	Wernecke Breccia

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PF – prefeasibility

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## Appendix 1 (continued): 2006 EXPLORATION PROJECTS

Project name	Company	Minfile no.	NTS	Work type	Primary commodity	Deposit
<b>Hat</b>	H. Coyne and Sons	105D 125		P,G,DD	Cu	skarn/ replacement
<b>Yukon Olympic</b>	Copper Ridge Exploration Inc.	116G 082		G,GP	Cu	Wernecke Breccia
<b>Hopper</b>	Strategic Metals Ltd.	115H 019		P,G	Cu	porphyry/ sheeted vein
<b>Cuprum</b>	Manson Creek Resources Ltd.	105E 008		P,G,GP,GC	Cu	skarn/ replacement
<b>BASE METALS – NICKEL ± PLATINUM GROUP ELEMENTS</b>						
<b>Bandito</b>	True North Gems Inc.	095C 051		P,G,AGP,GC,T,	Ni	skarn/ replacement
<b>Wellgreen</b>	Coronation Minerals/ Northern Platinum	115G 024		G,T,DD	Ni/PGE	mafic/ ultramafic associated
<b>Canalask</b>	Falconbridge Ltd./ StrataGold Corp.	115F 045		G,AGP,GP,GC	Ni/PGE	mafic/ ultramafic associated
<b>Burwash</b>	Golden Chalice Resources Inc./Strategic Metals	115G 100		P,G	Ni/PGE	mafic/ ultramafic associated
<b>BASE METALS – TUNGSTEN</b>						
<b>Logtung (Northern Dancer)</b>	Largo Resources Ltd./ Strategic Metals	105B 039		P,G,DD	W	porphyry/ sheeted vein
<b>Tootsee</b>	Cumberland Resources Ltd./ North American Tungsten	105B 089		P,G,AGP,DD	W	porphyry/ sheeted vein
<b>Risby</b>	Playfair Mining Ltd.	105F 034		G,DD	W	skarn/ replacement
<b>MacTung</b>	North American Tungsten	105O 002		F	W	skarn/ replacement
<b>BASE METALS – MOLYBDENUM</b>						
<b>Red Mountain</b>	Tintina Mines Ltd.	105C 009		G,DD,RC,PF	Mo	porphyry/ sheeted vein
<b>BASE METALS – TIN</b>						
<b>Tin (JC)</b>	Brett Resources Ltd.	105B 040		P,G,GP	Sn	skarn/ replacement

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## Appendix 1 (continued): 2006 EXPLORATION PROJECTS

Project name	Company	Minfile no.	NTS	Work type	Primary commodity	Deposit
<b>BASE METALS – URANIUM</b>						
<b>Igor</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	106E 009		P,G,GC,DD	U	Wernecke Breccia
<b>Slab</b>	Fronteer Development Group Inc./Rimfire Minerals	106D 070		P,G,AGP,GC	U	Wernecke Breccia
<b>Lumina</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	106C 069		P,G,AGP,GC,DD	U	Wernecke Breccia
<b>Curie</b>	Signet Minerals Inc.	106E 031		P,G,AGP,GC	U	Wernecke Breccia
<b>Hot Dog</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	115H 014		P,G,DD	U	volcanic associated
<b>Pedlar</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	115J 092		P,G,DD	U	porphyry/ sheeted vein
<b>Murphy</b>	Signet Minerals Inc./ Twenty Seven Capital Corp.	105F 079		G,AGP,DD	U	porphyry/ sheeted vein
<b>Steel</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	106D 049		P,G,DD	U	Wernecke Breccia
<b>Vic</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	106D 072		P,G,AGP,GC,T,DD	U	Wernecke Breccia
<b>Bonnie</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	new	106C/13	P,G,AGP,T,GC,DD	U	Wernecke Breccia
<b>Angel</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	new	106D/15	P,G,AGP,GC,T,DD	U	Wernecke Breccia
<b>Dolores</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	106C 013		P,G,AGP	U	Wernecke Breccia
<b>Pike</b>	Signet Minerals Inc./ Twenty Seven Capital Corp.	106E 040		P,G,AGP	U	Wernecke Breccia
<b>Bond</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	106D 065		P,G,AGP	U	Wernecke Breccia
<b>Alle</b>	Cash Minerals Ltd./ Twenty Seven Capital Corp.	105B 126		P,G,AGP	U	porphyry/ sheeted vein
<b>GEMSTONES</b>						
<b>Tsa da Glizsa</b>	True North Gems Inc.	105G 147		P,G,T,BS	gemstones	gemstones
<b>COAL</b>						
<b>Division Mountain</b>	Cash Minerals Ltd.	115H 013		G,DD	coal	industrial minerals
<b>Rock River Coal</b>	Almaden Minerals Ltd./ Santoy Resources	095D 026		G,DD	coal	industrial minerals
<b>Tantalus Butte</b>	Cash Minerals Ltd.	115I 003		G,DD	coal	industrial minerals

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## APPENDIX 2: 2006 DRILLING STATISTICS

Company	Property	# drill holes	Diamond drilling (m)	Percussion/ reverse circulation (m)
Alexco Resource Corp.	Brewery Creek	9	1184	
Alexco Resource Corp.	Keno Hill	42	11 500	
Almaden Minerals Ltd./Santoy Resources Ltd.	Rock River Coal	2	888	
Cash Minerals Ltd./Twenty Seven Capital Corp.	Angel	2	300	
Cash Minerals Ltd./Twenty Seven Capital Corp.	Vic	3	652	
Cash Minerals Ltd./Twenty Seven Capital Corp.	Bonnie	3	490	
Cash Minerals Ltd./Twenty Seven Capital Corp.	Lumina	22	2600	
Cash Minerals Ltd./Twenty Seven Capital Corp.	Pedlar	5		733
Cash Minerals Ltd./Twenty Seven Capital Corp.	Steel	2	900	
Cash Minerals Ltd./Twenty Seven Capital Corp.	Hot Dog	8	433	
Cash Minerals Ltd./Twenty Seven Capital Corp.	Igor	23	3000	
Cash Minerals Ltd.	Division Mountain	7	667	806
Cash Minerals Ltd.	Tantalus Butte	7	942	
CMC Metals Ltd.	CMC Silver (Silver Hart)	10	725	
Copper Ridge Exploration Inc.	Lucky Joe	3	780	
Coronation Minerals Inc./Northern Platinum Ltd.	Wellgreen	11	1936	
Cumberland Resources Ltd./North American Tungsten	Tootsee	3	1496	
Dynamite Resources Ltd.	Mike Lake	10	1698	
Eagle Plains Resources Ltd./Blind Creek Resources	Blende	23	4230	
Firestone Ventures Inc.	Sonora Gulch	12	1821	
International KRL Resources Corp.	Nor	9	1600	
Klondike Silver Corp./Atac Resources	Idaho Creek	5		555
Klondike Star Mineral Corp.	Lone Star	23	2892	
Largo Resources Ltd./Strategic Metals	Logtung (Northern Dancer)	17	3945	
Logan Resources Ltd.	Heidi	3	427	
Logan Resources Ltd.	Shell Creek	3	400	
Mountain Rio Resources	Moosehorn	24	2250	
Northern Freegold Resources/Atac Resources	Golden Revenue	26	4798	2165
Pacifica Resources Ltd.	Howards Pass	191	39 900	
Playfair Mining Ltd.	Risby	4	1000	
Regent Ventures Ltd.	Red Mountain Gold	5	1162	
Sedex Mining Corp./Strategic Metals	Tidd	16	1887	
Sherwood Copper Corp.	Minto	119	24 252	
Signet Minerals Inc.	Murphy	4	384	
StrataGold Corp.	Dublin Gulch	10	4280	
Strategic Metals Ltd.	Eureka	10		830
Klondike Silver Corp./Strategic Metals	Magnum	2	338	
Tagish Lake Gold Corp.	Skukum Creek	72	6452	

## Appendix 2 (continued): 2006 DRILLING STATISTICS

Company	Property	# drill holes	Diamond drilling (m)	Percussion/ reverse circulation (m)
Tintina Mines Ltd.	Red Mountain	2	173	
Valencia Ventures Inc./Strategic Metals	Blue Heaven	4	517	
Western Copper Corp.	Carmacks Copper	34	7204	742
YGC Resources Ltd.	Ketza River	238	29 500	
Yukon Gold Corp./Atna Resources	Marg	9	2987	
<b>TOTAL</b>			<b>172 590</b>	<b>5831</b>



# Yukon Placer Mining Overview 2006

**William LeBarge<sup>1</sup>**  
*Yukon Geological Survey*

LeBarge, W., 2006. Yukon Placer Mining Overview 2006. *In: Yukon Exploration and Geology 2007*, D.S. Emond, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 49-52.

## PLACER MINING

Today, more than 100 years after the discovery of gold in the Yukon, placer mining is still an important sector in the Yukon's economy. Over 16.6 million crude ounces (518 tonnes) of placer gold have been produced to date in the Yukon – at today's prices that would be worth more than \$9 billion.

Approximately 350 people were directly employed at 115 placer mines in 2006 – and several hundred more were employed in businesses and industries that serve the placer mining industry. Most of the placer operations were small and family-run, with an average of three or four employees.

A cold spring and the resulting remnant ground frost created a delay in the start of mining for many operations, but a warm autumn allowed several mines to continue sluicing late in the season. Many mine operators had difficulty obtaining skilled workers, and this affected their operations as they were forced to eliminate a shift or decrease operating hours.

The majority of active placer mining operations were in the Dawson Mining District, followed by the Whitehorse Mining District and the Mayo Mining District. No placer mines were active in the Watson Lake Mining District.

The total Yukon placer gold production in 2006 was 58,294 crude ounces (1 813 147 g), compared to 70,322 crude ounces (2 187 260 g) in 2005. The value of this 2006 gold production was \$31.8 million.

Approximately 87% of the Yukon's placer gold was produced in the Dawson Mining District, which includes the unglaciated drainages of Klondike River, Indian River, west Yukon (Fortymile and Sixtymile rivers) and the lower Stewart River (Fig. 1). The remaining gold came from the unglaciated Moosehorn Range in the Whitehorse Mining District, and other placer districts in the glaciated Mayo and Whitehorse mining districts which include Clear Creek, Mayo, Dawson Range, Kluane, Livingstone and Whitehorse South.

Reported placer gold production from Indian River drainages in 2006 dropped from 2005, from 26,473 crude ounces (823 403 g) to 18,008 crude ounces (560 111 g). Decreases were seen in all drainages but the largest shortfalls were from Indian River and Dominion and Sulphur creeks.

In Klondike-area drainages, production increased to 15,442 crude ounces (480 300 g) from 12,627 crude ounces (392 744 g) in 2005. Notable increases were seen on Klondike River, Bear Creek and Paradise Hill on Hunker Creek.

<sup>1</sup>[bill.lebarge@gov.yk.ca](mailto:bill.lebarge@gov.yk.ca)

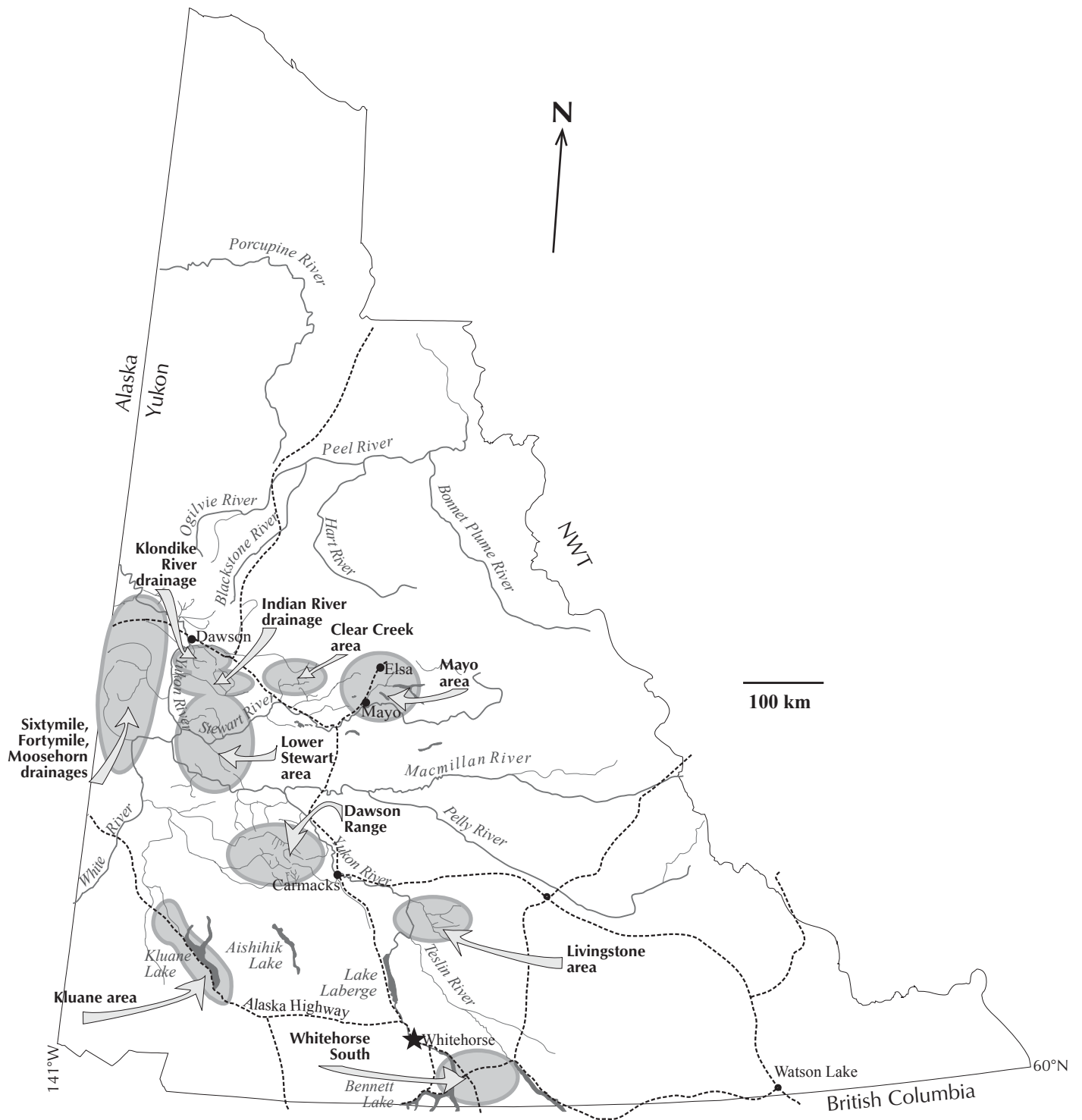


Figure 1. Yukon placer mining areas.

West Yukon (Sixtymile, Fortymile and Moosehorn Range) placer gold production decreased from 12,314 crude ounces (383 008 g) in 2005 to 9333 crude ounces (290 289 g) in 2006. The largest drop was from Sixtymile River, while Matson Creek and Ten Mile Creek saw slight increases.

Reported production from operations in the Lower Stewart drainages was also down in 2006, to a total of 7884 crude ounces (245 220 g) from 9572 crude ounces (297 722 g) the previous year. All operations reported less gold with the exception of Henderson Creek, which increased substantially.

As usual, little gold was reported from Clear Creek drainages although several operations were active in 2006. The total reported gold from royalties decreased slightly from 255 crude ounces (7931 g) to 232 crude ounces (7216 g).

In the Dawson Range area, reported placer gold production dropped to less than half of the 2005 total, from 1545 crude ounces (48 054 g) to 735 crude ounces (22 861 g).

In the Mayo area, gold production decreased from 2340 crude ounces (72 782 g) to 1471 crude ounces (45 753 g).

In the Kluane area, reported placer gold production dropped from 2667 crude ounces (82 953 g) to 2260 crude ounces (70 294 g).

The Livingstone area remained inactive, although 64 crude ounces (1991 g) of gold were reported.

In the Whitehorse South area, Iron Creek produced 24.8 crude ounces (771 g), roughly the same as the 2005 total of 27.4 crude ounces (852 g).

## PLACER EXPLORATION

Placer miners throughout the Yukon continue to explore for new deposits, using traditional methods such as auger, reverse circulation and churn drilling, and more recent innovations including ground-penetrating radar and magnetometer surveys. Trenching and bulk sampling also continue to be well-used methods of testing placer ground.

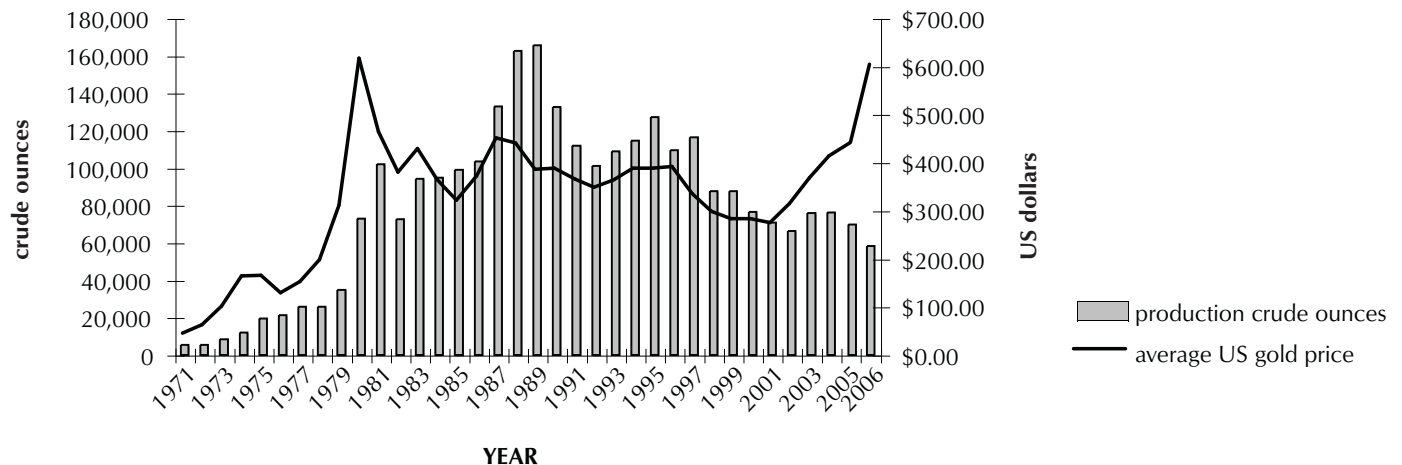


Figure 2. Yukon placer gold production figures and average US gold price, 1971-2006.

Several large mining operations were relocated to new ground in 2006, the result of both favourable exploration results in new areas and diminishing or exhausted reserves in extensively mined areas. This appears to have had a negative effect on the amount of gold produced as operators expended time, effort and money towards setting up new mines instead of sluicing gravel at established properties.

One of the exploration highlights of 2006 was the extensive development of the lower Sixtymile River drainage between the mouth of Ten Mile Creek and the confluence of Sixtymile River and Yukon River. In addition to testing and mining of several areas in the main valley and adjacent benches, several kilometres of road and an airstrip were constructed. This improved access is favourable for increased development and testing of nearby drainages such as Twenty Mile Creek and Thirteen Mile Creek, as well as the upstream reaches of the Sixtymile River.

The staff at the Yukon Geological Survey and the Client Services and Inspection Division (Department of Energy, Mines and Resources, Yukon government) can provide information and advice regarding placer mining in the Yukon. Publications on placer mining in the Yukon are available through the Yukon Geological Survey office at Room 102, Elijah Smith Building, 300 Main St., Whitehorse, Yukon. Many recent publications and maps can be downloaded for free from our website at [www.geology.gov.yk.ca](http://www.geology.gov.yk.ca),

## APERÇU

Aujourd'hui, plus de cent ans après la découverte des premiers gisements d'or dans le Yukon, l'exploitation des placers reste un important secteur de l'économie du Yukon. Plus de 16,6 millions d'onces brutes (518 tonnes) d'or placérien ont été produites à ce jour au Yukon, ce qui représente plus de 9 milliards \$ au prix actuel de l'or.

Près de 350 personnes étaient employées directement sur des placers en 2006 et plusieurs centaines d'autres étaient employées dans des entreprises et des industries au service de l'industrie des placers. La plupart des placers sont de petites entreprises familiales qui emploient en moyenne trois à quatre employés.

La majorité des placers encore actifs sont situés dans le district minier de Dawson, le restant se trouvant dans les districts miniers de Whitehorse et de Mayo. Il n'y a présentement aucune mine active dans le district minier de Watson Lake.

La production d'or dans les placers du Yukon a totalisé 58 294 d'onces brutes (1 813 147 g) en 2006 alors qu'elle s'élevait à 70 322 onces brutes (2 187 260 g) en 2005. La production d'or en 2006 est évaluée à 31,8 millions \$.

Approximativement 87 % de l'or placérien du Yukon a été produit dans le district minier de Dawson qui inclut les drainages non englacés de la rivière Klondike, de la rivière Indian, de l'Ouest du Yukon (rivières Fortymile et Sixtymile) et le cours inférieur de la rivière Stewart. Le reste de l'or a été extrait de la chaîne non englacée Moosehorn dans le district minier de Whitehorse et d'autres districts placériens dans les districts miniers englacés de Mayo et de Whitehorse qui comprennent Clear Creek, Mayo, la chaîne Dawson, Klune, Livingstone et Whitehorse Sud.



# Yukon Mining Incentives Program Overview 2006

*Steve Traynor<sup>1</sup>*  
*Yukon Geological Survey*

Traynor, S., 2007. Yukon Mining Incentives Program Overview 2006. *In: Yukon Exploration and Geology 2006*, D.S. Emond, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 53-54.

The Yukon Mining Incentives Program (YMIP) received 62 applications for funding by the March 1, 2006 submission deadline. Contribution agreements totaling \$880 600 were subsequently issued to 53 successful applicants. Proposals approved for funding included 5 under the Grassroots-Prospecting module, 17 under the Focused Regional module and 31 under the Target Evaluation module.

Gold continued to be the main commodity of exploration interest and was the focus of 34 of the projects which received approval for YMIP funding. Projects targeting copper and zinc-lead accounted for nine and six projects, respectively. While four other applicants explored for gemstones (2), molybdenum (1) and uranium (1). This year saw an increase in approved applicants proposing placer-related projects, with over 25% of the successful applicants undertaking placer exploration and testing programs.

Feedback, requested this year in the form of a survey, revealed that almost half of those responding would not have undertaken many of the exploration projects carried out in the Yukon in the past five years had YMIP funding not been available. Most of this group of respondents includes local private companies and/or aggressive and experienced prospectors who are currently attracting significant amounts of junior exploration capital to the Territory.

The program is achieving its goal of stimulating grassroots exploration, which is critical in maintaining a supply of projects with potential for new discoveries and advanced exploration. In fact, half of the 140 projects active in 2006 in the Yukon are either currently receiving YMIP funding or are projects that have been optioned off to listed junior companies following their initial discovery through past YMIP-funded projects.

In the process of stimulating exploration for new grassroots targets, programs such as the Yukon Mining Incentives Program continue to encourage new mining industry spending and contribute to activities that may lead to the development of new mines. Widely acclaimed by prospectors and industry alike, these programs are the cornerstones of healthy mining industries in jurisdictions which promote and support their existence through continued and stable levels of funding.

## RÉSUMÉ

Soixante deux demandes de financement ont été déposées dans le cadre du Programme d'encouragement des activités minières au Yukon (PEAMY) avant la date limite de présentation des demandes (1<sup>er</sup> mars 2006). Des accords de contribution, d'une valeur totale de 880 600 \$, ont par la suite été paraphés avec 53 demandeurs. Les propositions dont le financement a été approuvé comprennent 5 projets d'exploration primaire et de prospection, 17 projets dans des régions sous-

<sup>1</sup>steve.traynor@gov.yk.ca

explorées et 31 projets visant à faciliter l'évaluation de cibles.

L'or demeure le produit suscitant le plus d'intérêt dans le domaine de l'exploration et il est le point de mire de 34 des projets financés par le PEAMY. Neuf projets approuvés portent sur le cuivre et six sur le plomb zinc. Quatre autres projets sont axés sur des activités

d'exploration à la recherche de gemmes (2), de molybdène (1) et d'uranium (1). Cette année a été marquée par une hausse du nombre de projets centrés sur des placers qui ont été approuvés, plus de 25 % des projets approuvés consistant en des programmes d'essai et d'exploration de placers.

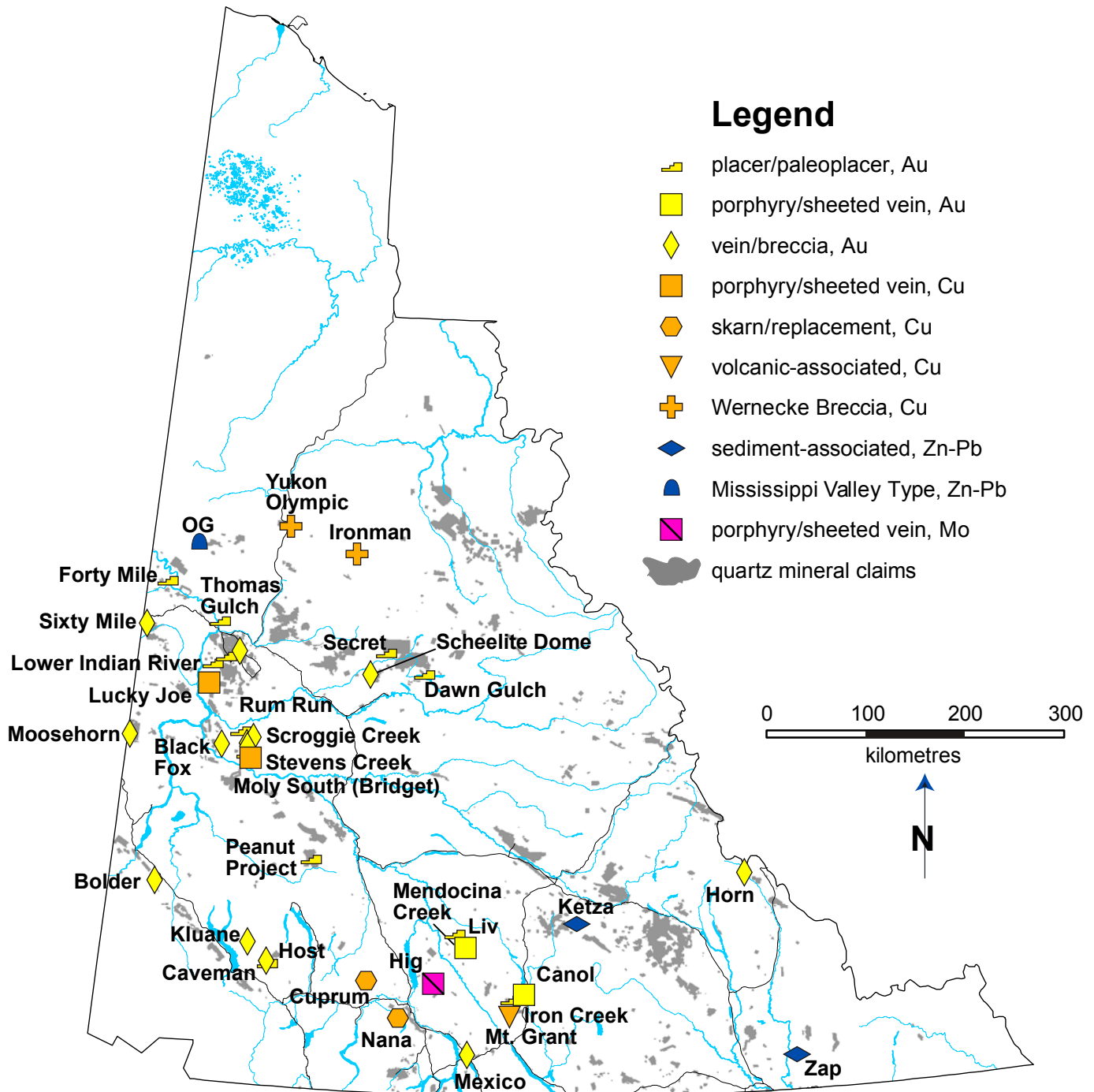


Figure 1. 2006 Yukon Mining Incentives Program project locations.

# GOVERNMENT

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*Grant Abbott and staff*  
Yukon Geological Survey

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# Yukon Geological Survey

## *Grant Abbott<sup>1</sup> and staff*

Abbott, J.G. and staff, 2007. Yukon Geological Survey. *In: Yukon Exploration and Geology 2006*, D.S. Emond, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 57-71.

## OVERVIEW

The Yukon Geological Survey (YGS; Fig. 1) is recovering from the tragic loss of Geoff Bradshaw, our Mineral Assessment Geologist, in a helicopter accident over the summer. We thank so many of our colleagues in the geological and mining communities for their tremendous sympathy and support. We are also adjusting to the departure of geologists Craig Hart and Julie Hunt to the sunny climes of Australia. We wish them well, and thank them for their significant contributions to Yukon geology. We welcome three new staff: Carrie Labonte took over from Monique Raitchey in March as office manager; Aubrey Sicotte came on board in January 2007 as spatial data administrator; and Yana Fedortchouk joined us for six months as a project geologist.

YGS has a new organizational structure (Fig. 2) with four main subdivisions. New responsibilities go to Mike Burke as Acting Head of Mineral Services; Diane Emond as Acting Head of Technical



**Figure 1.** Yukon Geological Survey staff from left to right: Grant Abbott, Tiffani Fraser, Don Murphy, Charlie Roots, Tammy Allen, Mike Burke, Lee Pigage, Karen Pelletier, Carrie Labonte, Lara Lewis, Jeff Bond, Olwyn Bruce, Leyla Weston, Panya Lipovsky, Diane Emond, Steve Israel, Ali Wagner, Maurice Colpron, Steve Traynor, Bill LeBarge, Rod Hill, Robert Deklerk. Absent: Grant Lowey, Yana Fedortchouk.

<sup>1</sup>grant.abbott@gov.yk.ca

Services; Don Murphy as Acting Head of Regional Geology; and Lee Pigage as Acting Head of Resource Assessments and Outreach.

YGS continued to enjoy stable core funding, and also benefited significantly from the DIAND Targeted Investment Program under the Strategic Investments in Northern Economic Development (SINED) Fund. SINED funding enabled us to undertake large geochemical and geophysical surveys that would not have otherwise been possible.

The Technical Liaison Committee to the YGS reviews our program twice a year. We are grateful to Chair Gerry Carlson and the committee for their valuable support and constructive advice. This year Greg Lynch from Shell Canada joined the committee to represent Oil and Gas interests. Other members are Rob Carne, Shawn Ryan, Al Doherty, Jean Pautler, Forest Pearson, Jim Mortensen and Jim Christie.

## PROJECTS

The YGS completed or supported 24 field projects in 2006. They are listed on the following pages. This year included a diversity of work that reflects our mandate to support hydrocarbon development and to meet increased demands for baseline data to address environmental and development issues, while continuing to support our primary client, the mineral industry. Projects included 1:50 000-scale bedrock mapping, mineral deposit studies, surficial studies and mapping, regional stream sediment geochemistry, an aeromagnetic survey and topical geology studies. However, with the tragic events of the summer, and departure of key staff, our capacity to undertake mineral deposits studies has been significantly diminished.

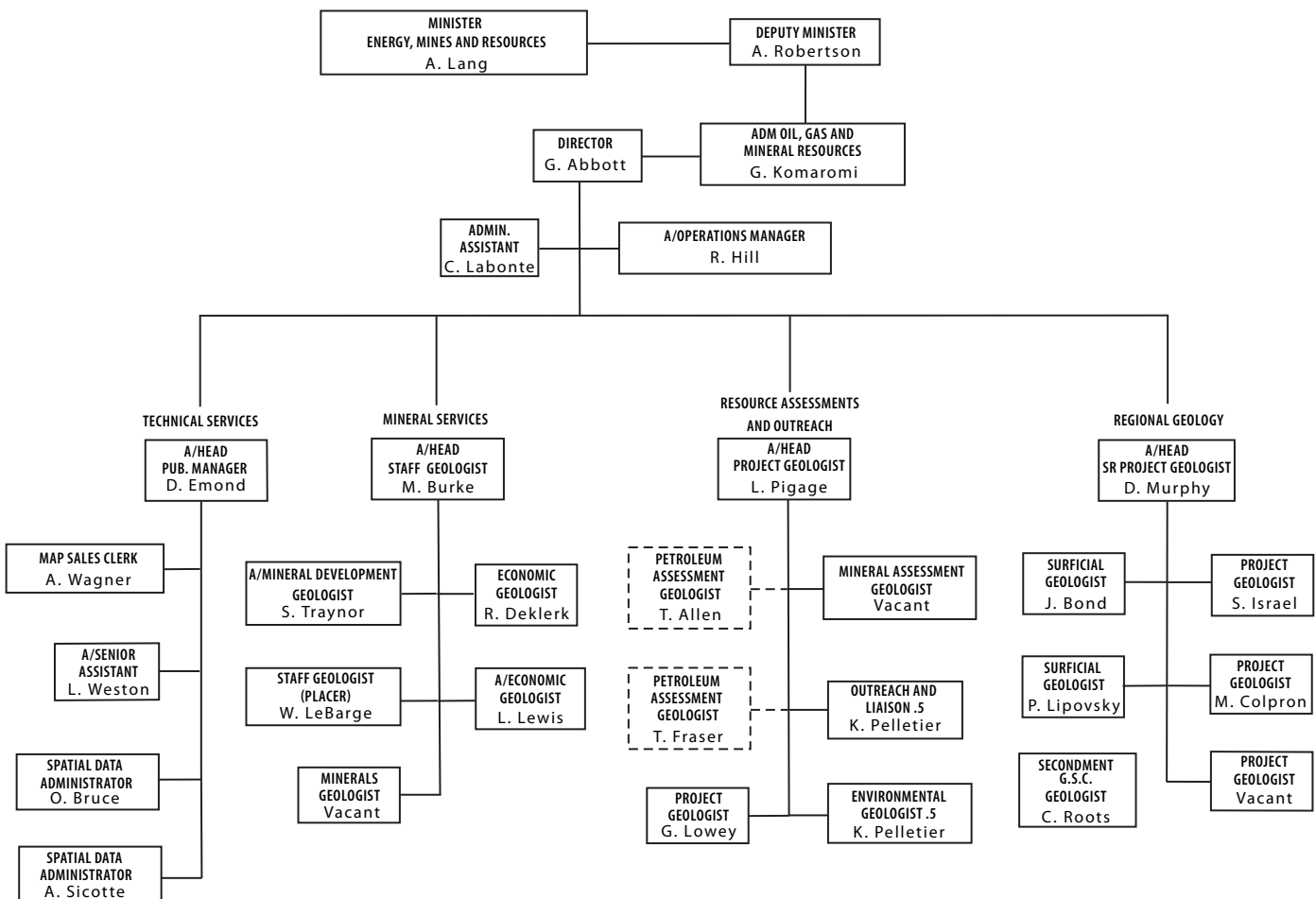


Figure 2. Yukon Geological Survey organization chart.

## BEDROCK MAPPING

1. **Maurice Colpron** teamed up with **Steve Gordey** (Geological Survey of Canada [GSC]), **Grant Lowey**, **Steve Piercey** (Laurentian University) and **Don Murphy** to map the northwestern portion of Whitehorse Trough. This map provides ground control of the bedrock geology along the western portion of the seismic survey acquired in 2004 by GSC/YGS. Compilation and interpretation of the various geoscience datasets is underway and will provide the basis for reassessing the oil and gas potential of northern Whitehorse Trough.

2. **Lee Pigage** began a mapping project in the Otter Creek area (NTS 95D/6) of southeast Yukon. This project is a continuation of his earlier work in the Pool Creek and Toobally Lakes areas, and will improve our understanding of structure, stratigraphy and mineral potential of the southeast margin of Selwyn Basin.

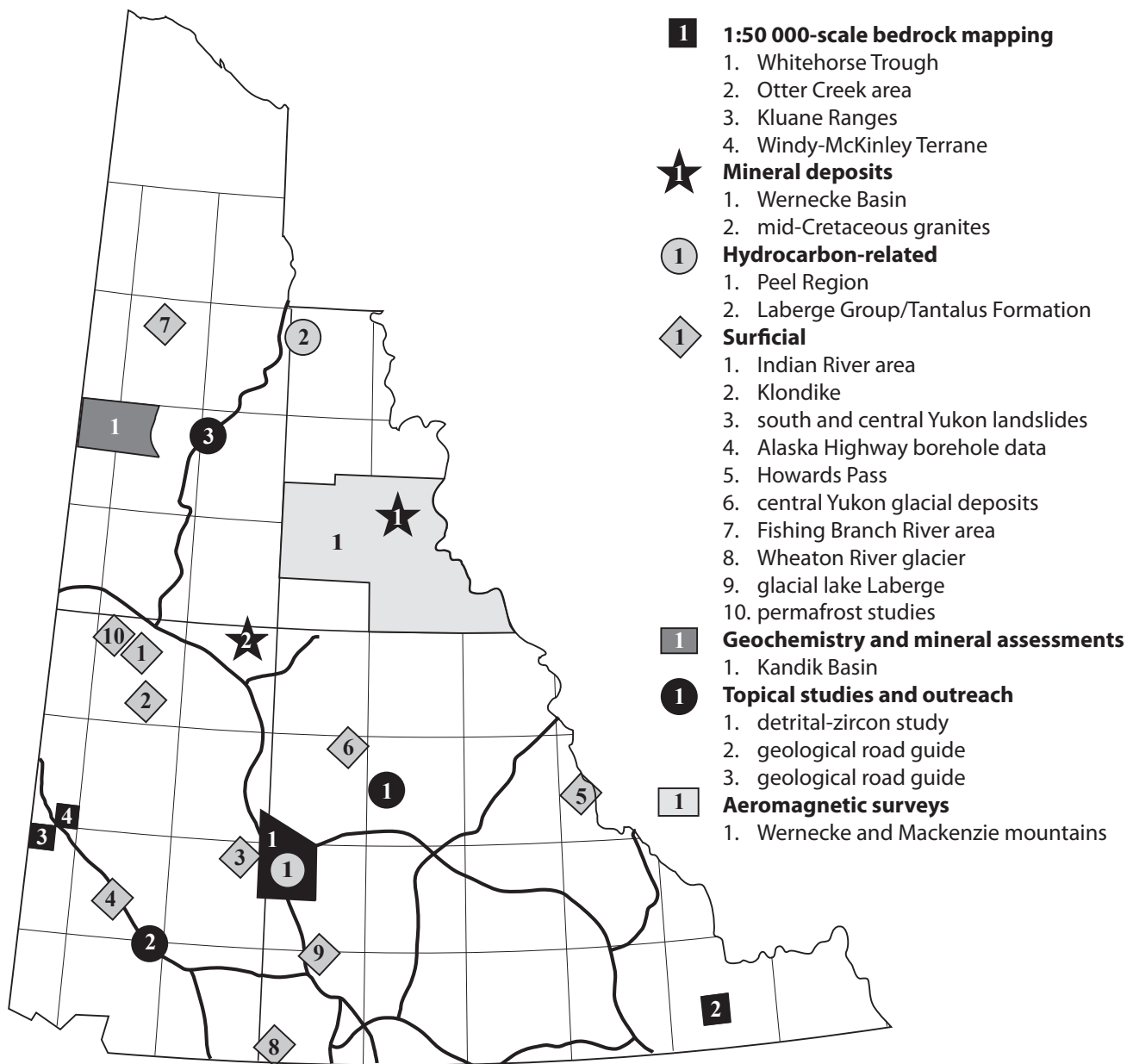


Figure 3. Field projects carried out or sponsored by the Yukon Geological Survey in 2006.

3. **Steve Israel** continued mapping in the Kluane Ranges, focusing on Late Paleozoic strata of the Skolai Group east of the White River where it is host to Triassic mafic-ultramafic intrusions that host nickel, copper and platinum-group-element mineralization. In conjunction with **Jim Mortensen** of the University of British Columbia (UBC), this project is also examining the provenance of Wrangell Terrane through detrital-zircon studies of Middle Triassic and Late Paleozoic sedimentary deposits. Studies of the young deformation associated with the Denali Fault are also taking place in collaboration with **Don Murphy** (YGS) and workers from the USGS in Alaska.
4. **Don Murphy** conducted a reconnaissance of the poorly exposed, poorly understood Windy-McKinley Terrane. As originally defined in central Alaska, the Windy and McKinley terranes comprise ophiolitic rocks of unknown age, and mélangé and flysch of Mesozoic age. Little is known about the original relationships, if any, between these components and adjacent rocks of Yukon-Tanana Terrane. Don's work will document the nature of these assemblages in Yukon, thereby providing a basis for mineral exploration decisions and land-use planning in the area.

### MINERAL DEPOSIT STUDIES

1. **Lara Lewis** gathered data on intrusion-related and Wernecke Breccia uranium occurrences for a compilation on uranium exploration in Yukon. She is studying the enigmatic uranium occurrences associated with Wernecke Breccia. New U-Pb dates for uranium mineralization are expected to provide constraints on timing of mineralizing events.
2. **Jake Hanley** and **Ed Spooner** (University of Toronto) are continuing a post-doctoral study of the evolution and generation of magmatic fluids in mid-Cretaceous granites in Yukon and their relationship to gold mineralization.

### HYDROCARBON-RELATED STUDIES

1. **Tammy Allen** and **Tiffani Fraser** began a four-year project assessing the hydrocarbon potential of the Peel Region in northeastern Yukon. The study involves collaboration with the GSC, the Northwest Territories Geoscience Office, industry and university affiliates. The focus this year is the Upper Devonian – Lower Carboniferous Tuttle Formation. A major objective of this project is to assess the Tuttle as a potential petroleum reservoir, and to examine neighbouring units as petroleum sources. Another objective is to clarify stratigraphic relationships and sedimentology of Upper Paleozoic strata.
2. **Grant Lowey** continued studies of the sedimentology, stratigraphy and hydrocarbon potential of the Laberge Group and Tantalus Formation in the Whitehorse Trough, where studies last year discovered petroleum fluid inclusions and identified two potential petroleum source rocks. He also assisted M. Colpron in 1:50 000-scale bedrock mapping of the northern part of this frontier petroleum basin.

### SURFICIAL STUDIES

1. Yukon Geological Survey placer geologist **William LeBarge**, **Dr. Vladimir Naumov** (Perm University, Russia) and **Dr. Rob Chapman** (University of Leeds, United Kingdom) are studying the sedimentology, stratigraphy and gold characteristics of gravel and conglomerate deposits in the Indian River area. These gravel terraces and the underlying conglomerates are currently the focus of exploration by Boulder Mining Corporation and Klondike Star. New interpretations of geology and data from this study will further characterize the nature of the placer gold distribution in the Indian River drainage and may help to identify new placer reserves, locally, and in nearby drainages. This research complements a study by **Dr. Jim Mortensen** at UBC, focusing on the trace-element characteristics of placer gold in the Klondike, which may help to reveal potential undiscovered lode gold sources.



2. **Jeff Bond**, in partnership with **Paul Sanborn** and **Scott Smith**, continued their studies of the unglaciated soils in the Klondike. This year, Jeff undertook a geochemical investigation of the soils at the original Boulder Lode mine site on the Lone Star property. In addition, upland cryosols (permafrost-affected soils) were studied on the Lone Star property. Assisting with this investigation is **Kathryn Denomme** from the University of Waterloo. Her undergraduate thesis involves mapping the surficial materials on a typical north-facing unglaciated slope from the Lone Star property.
3. **Panya Lipovsky** continued work monitoring permafrost-thaw-related landslides in south and central Yukon. In collaboration with C-CORE and the European Space Agency, InSAR, remote sensing technology and high-precision GPS surveys were used to monitor small-scale ground movements at five landslide sites near Beaver Creek, Carmacks and Little Salmon Lake. A reconnaissance inventory of landslides in the Pelly River watershed was also undertaken.
4. **Erin Trochim** and **Panya Lipovsky** continued their compilation of Yukon Department of Highways borehole data to capture detailed geotechnical and permafrost information. Their work has extended the data set to cover the Alaska Highway from Beaver Creek to east of Haines Junction.
5. **Derek Turner** and **Brent Ward** (Simon Fraser University), and **Jeff Bond** began a study looking at the glacial history of the Howards Pass property in the Selwyn Mountains. The work is being completed through Derek Turner's MSc thesis. His project involves reconstructing the late glacial history of the Selwyn Lobe of the Cordilleran ice sheet, mapping the surficial geology of Pacifica Resources' property and conducting a mobile metal ion geochemistry case study across the SEDEX deposit.
6. **Brent Ward** and **Jeff Bond** continued their investigation into the age of Reid glacial deposits in central Yukon. This involved sampling for cosmogenic dating and tephra chronology in the Pelly River area.
7. **Nicholas Utting** and **Ian Clark** (University of Ottawa), in cooperation with YGS, conducted a study on the water chemistry and noble gases in perennial springs at Bear Cave Mountain, Fishing Branch River area. This work is to address First Nation concerns about potential disturbance of groundwater during hydrocarbon exploration.
8. **Monica Bruckner**, **Mark Skidmore** and **Jeff Bond** – Monica conducted her Master's thesis field research (Montana State University) on one of the Wheaton River glaciers this past summer. She is investigating the biogeochemical characteristics of meltwater in a deglaciating basin.
9. **Stephen Horton** (University of Victoria), **Jeff Bond** and **Peter Von Gaza** (Geomatics Yukon) – Stephen's undergraduate research involves reconstructing the paleogeography of glacial lake Laberge.
10. **Dr. Antoni Lewkowicz** and graduate students from the University of Ottawa continued with a number of permafrost studies around the Territory. They have been documenting the effects of the 2004 forest fires near Dawson on slope stability and sedimentation into watercourses, investigating the origin and dynamics of thermokarst lakes and palsas in the Wolf Creek watershed near Whitehorse, and developing regional permafrost modelling/mapping techniques. Geophysical investigations of permafrost landforms and recent landslides were also carried out in collaboration with **Bernd Etzelmüller** (University of Oslo, Norway) and YGS personnel.
11. **Panya Lipovsky** and **Jeff Bond** are compiling a digital surficial geology map for the entire Yukon, with funding from DIAND under the Strategic Initiatives for Northern Economic Development Program (SINED).

## TOPICAL STUDIES AND OUTREACH

1. **Luke Beranek**, a UBC PhD candidate with **Jim Mortensen**, has been steadily adding to the detrital-zircon database for Late Paleozoic and Triassic rocks on both sides of the boundary between the North American continental margin sequence and Slide Mountain and Yukon-Tanana terranes. Luke's 2005 work showed that the terranes were already shedding debris into North America by the Early Triassic, substantially earlier than previously thought. This season, Luke collected samples from occurrences of Triassic rocks in the Pelly, Selwyn and Ogilvie mountains.

2,3. **Karen Pelletier** and **Charlie Roots** (GSC) began work on a Yukon geological road guide this summer by scouting appropriate geological stops of interest along most roadways in Yukon. Charlie, along with **Tiffani Fraser** and **Tammy Allen**, also contributed to the Dempster Highway Log being prepared jointly with GSC/NWT. A draft of the guide, entitled *Roadside Geology of the Dempster Highway, Northwest Territories and Yukon: A traveller's guide to the Geology of Canada's most northwestern road link*, will be available for use by tourists for spring 2007, along with accompanying road brochures for designated highway segments. The final product is projected to be complete by spring 2008.

## REGIONAL GEOCHEMISTRY AND MINERAL ASSESSMENTS

1. GSC, in collaboration with **Geoff Bradshaw**, completed a stream geochemical survey of an area covering the Kandik Basin in northcentral Yukon, south of Fishing Branch Territorial Park. Funding for the survey was provided by DIAND through SINED. Results will be released in late spring 2007.

## AEROMAGNETIC SURVEYS

1. GSC, in collaboration with YGS, began an extensive aeromagnetic survey in the Wernecke and Mackenzie mountains. Funding was provided by DIAND under SINED. Inclement weather during the summer prevented completion of the survey. Completion is now expected in early 2007, with results released in late summer.

## PROGRAMS

### MINING AND PETROLEUM ENVIRONMENT RESEARCH GROUP (MPERG)

MPERG is a cooperative working group made up of government agencies, environmental, mining and petroleum resource companies, Yukon First Nations and Non-Government Organizations (NGOs). It was established to promote research into environmental issues for mining and petroleum development in the Yukon. Participants bring together their resources and knowledge to work cooperatively on industry-related environmental issues and projects. MPERG creates a favourable environment to facilitate finding solutions before environmental problems arise. The group is funded by

YGS and chaired by Grant Abbott, with administrative support from Karen Pelletier.

Five studies were approved for funding for 2006/07:

- John L. Bailey: Yukon River Basin Stream Bioassessment Modeling and Placer Mining Stream Gradient Analysis
- The Yukon Government Oil and Gas Management Branch: Preliminary Investigation of Seismic Lines and associated disturbances in the Eagle Plains and Peel Plateau regions of North Yukon
- EDI Environmental Dynamics Inc in partnership with Devon Energy Corp., Environment Canada, and the Yukon Department of Transportation and Engineering: Regeneration effects of Linear Development Subject to Wildfires in Continuous Permafrost Zones
- Gartner Lee Ltd.: Regional Water Quality Assessment of the South Macmillan River Watershed
- Laberge Environmental Services: Follow-up monitoring: Pilot Sale Erosion Control at Gold Run Creek and Shrub Trial Plots at Brewery Creek Mine

## YUKON MINING INCENTIVES PROGRAM

The Yukon Mining Incentives Program (YMIP) is currently administered by Steve Traynor. This year, funding was offered to 53 of 62 applicants, for a total of \$880 600. Proposals approved for funding included 5 under the Grassroots-Prospecting module, 17 under the Focused Regional module, and 31 under the Target Evaluation module.

Gold continued to be the main commodity of exploration interest and was the focus of 34 of the projects which received approval for YMIP funding. Projects targeting copper and zinc-lead accounted for nine and six projects, respectively. Two applicants explored for gemstones; one applicant explored for molybdenum and another for uranium. This year saw an increase in approved applicants proposing placer-related projects, with over 25% of the successful applicants undertaking placer exploration and testing programs.

## LIAISON TO INDUSTRY, FIRST NATIONS AND THE PUBLIC

The YGS recognizes the importance of effectively communicating information on the geology and mineral and energy resources of the Yukon to a broad audience that includes industry, resource managers, First Nations

and the general public. We are continuing to focus more attention on developing strategies and products that meet these needs.

Mike Burke and Bill LeBarge, our main links to the exploration industry, continued to monitor Yukon hard-rock and placer mining and mineral exploration activity, visit active properties, review reports for assessment credit, and maintain the assessment report library.

Karen Pelletier, Charlie Roots and other YGS staff continue to make presentations in the schools and conduct field trips in the communities. Products developed this year to increase public awareness of the geology and mineral resources of the Yukon include new commodity and mineral potential brochures. Upgrades to our websites will be in place by the end of March.

Karen Pelletier also reviews Mining Land Use and Water License applications, and monitors reclaimed sites to document the effectiveness of mitigation practices. As well, she represents the YGS on several committees which sponsor environmental research involving geology. Karen has also been involved in developing a best-practices guide for reclamation of placer mines.

## INFORMATION MANAGEMENT AND DISTRIBUTION

With the increasing volume of information generated by the YGS and others, and rapidly evolving digital technology, the Survey continues to put significant resources into making geological information more accessible. Our website and Map Gallery are both undergoing substantial revisions that will make them easier to use and provide greater online functionality to the MINFILE and publications databases. A large part of our effort has gone into developing and maintaining key databases and making all of our information internet-accessible. Ongoing activities include support for the H.S. Bostock Core Library and the Energy, Mines and Resources (EMR) library (Elijah Smith Building) in Whitehorse.

### DATABASES

Yukon MINFILE is a database containing over 2600 records on Yukon's mineral occurrences. It is maintained by Robert Deklerk and Lara Lewis. Recent efforts have gone toward making the database fully searchable online. As a result, the most current CD-ROM release dates back to November 2005, and will likely be the last CD-ROM of

the database we release. Online searching of the database will allow the user to access the most complete and up-to-date data, as it will link to a non-static dataset. This new direction has required conversion of the database from Access to Oracle and the standardization of data and data fields. The online search is expected to be completed in mid-2007.

The Yukon Placer Database, compiled by Bill LeBarge, was updated and a new version was released in May, 2006. The database is in Microsoft Access 2000 format and is a comprehensive record of the geology and history of Yukon placer mining. The database contains descriptions of 457 streams and rivers, and 1443 associated placer occurrences, of which 130 were updated for this version. It also includes location maps in Portable Document Format (PDF). A new release is planned for spring 2007, which will include detailed updated information from placer mining activity between 2003 and 2006.

YGS, in partnership with the GSC, is in the process of updating the Yukon Digital Geology compilation, which was last revised in 2003. The revised database will not only incorporate recent maps, but will also conform to the North American Data Model. This standard, which is slowly being adopted by geological surveys across North America, allows users to generate a seamless map from more than one source (i.e., two or more jurisdictions). The model will allow the selection of subsets of data to generate maps defined by lithology, age or map unit. It will also be possible to create generalized maps through a hierarchy of attributes (i.e., Group *versus* Formation or Paleozoic *versus* Devonian). The new map database is expected to be available online by April, 2007.

Jeff Bond and Panya Lipovsky began development of a Digital Surficial Geology Map of the Yukon, in partnership with the GSC, and with SINED funding. The map database will have the same functionality as the bedrock database. The release is planned for early 2008.

The Yukon Regional Geochemical Database 2003, compiled by Danièle Héon, contains all of the available digital data for regional stream sediment surveys that have been gathered in the Yukon under the Geological Survey of Canada's National Geochemical Reconnaissance Program. It can be viewed online through the Map Gallery and is available on CD-ROM in Microsoft Excel 2000 format and in ESRI ArcView Shapefile format.

The YukonAge Database, compiled by Katrin Breitsprecher and Jim Mortensen at the University of British Columbia, with funding from the YGS, was

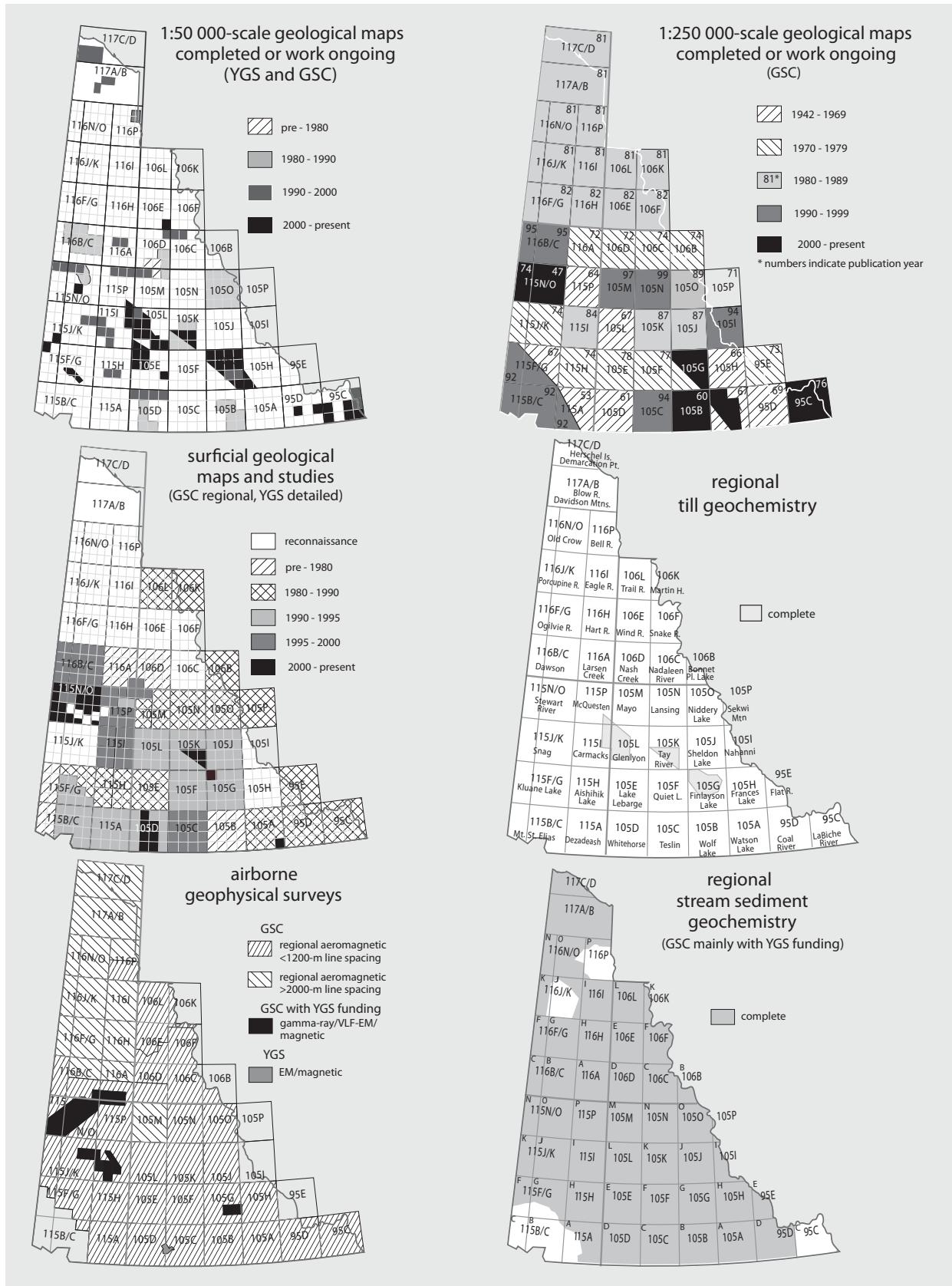


Figure 4. Summary of available geological maps, and regional geochemical and geophysical surveys in the Yukon.

updated in 2004. It can be viewed on the YGS Map Gallery in a version modified by Mike Villeneuve and Linda Richard of the Geological Survey of Canada. The database now contains 1556 age determinations derived from 1166 rock samples from the Yukon Territory. It is available in both Microsoft Access 2000 format and as a flat file in Microsoft Excel 2000 format so that the data may be viewed without Microsoft Access.

The Yukon Geoscience Publications Database is available online. It is current and contains almost 8000 references to papers on Yukon geology and mineral deposits, including YGS publications.

All open assessment reports (more than 5000) are now in PDF format and accessible over the internet through the EMR library website. In the Yukon, reports remain confidential for five years. In addition, we have acquired exploration records from the various companies that owned the Faro District. This acquisition includes both records of the Faro District as well as outside projects. Most of the records are now available for viewing.

### **H.S. BOSTOCK CORE LIBRARY**

Mike Burke maintains the H.S. Bostock Core Library. The facility contains about 128 000 m of diamond drill core from about 200 Yukon mineral occurrences. Confidentiality of material is determined on the same basis as mineral assessment reports. Confidential core can be viewed with a letter of release from the owner. Rock saws and other rock preparation equipment are available to the public.

### **EMR LIBRARY**

The Yukon Energy, Mines and Resources Library is the Yukon's largest scientific library and an invaluable resource. It is located in Room 335 of the Elijah Smith Building and is open to the public. The Library provides access to Yukon Mining Assessment reports, maps (geology, topographic and aeromagnetic), and aerial photographs. It holds many geology journals and a good selection of materials on general geology, Yukon geology and economic geology. The Library is also the access point for Faro exploration records. In addition to geological information, the Library has books, reports, and journals in other areas: oil and gas, forestry, agriculture and energy, as well as a very comprehensive collection of Yukon publications.

### **INFORMATION DISTRIBUTION**

The YGS distributes information in three formats: 1) paper maps and reports are sold and distributed through our Geoscience Information and Sales Office; 2) many recent publications and databases are available in digital format at much lower prices than for paper copies; and, 3) most of our publications are available as PDF files on our website ([www.geology.gov.yk.ca](http://www.geology.gov.yk.ca)), free of charge. A catalogue of assessment reports is also available online ([www.emr.gov.yk.ca/library](http://www.emr.gov.yk.ca/library)).

We are pleased to make spatial data available through our interactive map server, the Map Gallery, which can be accessed through the YGS website. We are continuing to improve the Map Gallery and users are encouraged to provide feedback and suggest improvements.

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Ph. (867) 667-5200  
Fax (867) 667-5150  
E-mail: [geosales@gov.yk.ca](mailto:geosales@gov.yk.ca)

To access publications and to learn more about the Yukon Geological Survey visit our website at [geology.gov.yk.ca](http://geology.gov.yk.ca), or contact us directly:

Grant Abbott, A/Director  
Yukon Geological Survey  
2099 Second Avenue  
P.O. Box 2703 (K10)  
Whitehorse, Yukon Y1A 2C6  
Ph. (867) 667-3200  
E-mail: [grant.abbott@gov.yk.ca](mailto:grant.abbott@gov.yk.ca)

Rod Hill, A/Manager  
Yukon Geological Survey  
2099 Second Avenue  
P.O. Box 2703 (K10)  
Whitehorse, Yukon Y1A 2C6  
Ph. (867) 667-5384  
E-mail: [rod.hill@gov.yk.ca](mailto:rod.hill@gov.yk.ca)

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# La Commission géologique du Yukon

*Grant Abbott<sup>1</sup> et Maurice Colpron<sup>2</sup>  
Le Service de géologie du Yukon*

Abbott, J.G. et Colpron, M., 2007. La Commission géologique du Yukon. *Dans* : Yukon Exploration and Geology 2006, D.S. Emond, L.L. Lewis et L.H. Weston (réds.), la Commission géologique du Yukon, p. 73-76.

## SOMMAIRE D'ACTIVITÉS

La commission géologique du Yukon (CGY) se remet de la perte tragique de notre géologue d'évaluation des ressources minérales, Geoff Bradshaw, dans un accident d'hélicoptère au cours de l'été dernier. Nous remercions les nombreux collègues et amis des communautés géologique et minière pour leur incroyable support. Nous nous ajustons aussi aux départs de deux de nos géologues, Craig Hart et Julie Hunt; nous leur souhaitons du succès sous le soleil d'Australie et les remercions pour leurs importantes contributions à la géologie du Yukon. Toutefois, jusqu'à leur remplacement, notre capacité de conduire des études de gîtes minéraux en sera réduite.

La CGY opère maintenant selon un nouvel organigramme comprenant quatre services. Les responsabilités de gérance des Services minéraux revient maintenant à Mike Burke en tant que chef intérimaire; alors que Diane Emond est chef des Services techniques, Don Murphy est chef du Service de géologie régionale, et Lee Pigage est chef du Service d'évaluation des ressources et des relations publiques.

## TRAVAUX SUR LE TERRAIN

### CARTOGRAPHIE DU SUBSTRATUM ROCHEUX

1. **Maurice Colpron** a collaboré avec **Steve Gordey** (commission géologique du Canada [CGC]), **Grant Lowey**, **Steve Piercey** (université Laurentienne) et **Don Murphy** pour cartographier la partie nord-ouest de la fausse de Whitehorse. Cette cartographie complète les contôles de surface de la géologie le long de la partie ouest du relevé sismique acquit en 2004 par la CGY et la CGC. La compilation et l'interprétation des diverses données géoscientifiques sont en cours; elles formeront la base d'une réévaluation du potentiel pétrolier de la fausse de Whitehorse septentrionale.
2. **Lee Pigage** a entamé la cartographie de la région d'Otter Creek (STN 95D/6) dans le sud-est du Yukon. Ce projet continue ses travaux antérieurs dans les régions de Pool Creek et de Toobally Lakes. Il permettra d'améliorer nos connaissances de la stratigraphie, la structure, et le potentiel minéral à la limite sud-est du bassin de Selwyn.

<sup>1</sup>grant.abbott@gov.yk.ca

<sup>2</sup>maurice.colpron@gov.yk.ca

3. **Steve Israel** a continué la cartographie des monts Kluane, se concentrant cette année sur les strates Paléozoïques tardive du Groupe de Skolai à l'est de la rivière White. Dans cette région, ces strates contiennent des intrusifs mafiques à ultramafiques du Trias minéralisés en nickel-cuivre et éléments du groupe du platine. Ce projet examine aussi la provenance des strates sédimentaires du Paléozoïque tardif et du Trias moyen du terrane de Wrangel, à l'aide des zircon détritiques et en collaboration avec **Jim Mortensen** (université de Colombie-Britannique). L'étude de la déformation récente le long de la faille de Denali est aussi en cours en collaboration avec **Don Murphy** et des collègues du USGS en Alaska.
4. **Don Murphy** a conduit une cartographie de reconnaissance du terrane de Windy-McKinley : une région avec peu d'affleurements, donc peu connue. Tels que définis dans le centre de l'Alaska, les terranes de Windy et de McKinley comprennent des roches ophiolitiques d'âge inconnu, et du mélange et du flysch du Mésozoïque. On en sait peu sur les relations originelles entre ces diverses composantes, et entre celles-ci et le terrane de Yukon-Tanana. Les travaux de Don permettront d'établir la nature de ces assemblages au Yukon, et d'assister l'exploration minérale et la planification d'usage des terres dans la région.

### ÉTUDES DE GÎTES MINÉRAUX

1. **Lara Lewis** a recueillie des données de terrain sur les indices d'uranium associés aux brèches de Wernecke et reliés aux intrusions, dans le cadre d'une compilation portant sur l'exploration pour l'uranium au Yukon. De nouvelles datations de la minéralisation en uranium devraient établir la chronologie des événements minéralisateurs.
2. **Jake Hanley** et **Ed Spooner** (université de Toronto) poursuivent une étude post-doctorale portant sur l'origine et l'évolution des fluides magmatiques, et leurs relations à la minéralisation aurifère dans les granits du Crétacé moyen au Yukon.

### ÉTUDES PORTANT SUR LES HYDROCARBURES

1. **Tammy Allen** et **Tiffani Fraser** ont entamées une étude de quatre ans portant sur l'évaluation du potentiel en hydrocarbures de la région de Peel, dans le nord-est yukonnais. Ce projet est une collaboration de la CGY avec la CGC, le centre géoscientifique des Territoires du Nord-Ouest, et des partenaires industriels et universitaires. Cette année, Tammy et Tiffani ont concentrées leurs efforts sur la Formation de Tuttle, d'âge Dévonien tardif à Mississipien précoce. Les principaux objectifs de ce projet sont : a) d'évaluer le potentiel de la Formation de Tuttle en tant que réservoir pétrolier ; b) d'examiner les unités avoisinantes en tant que sources possible de pétrole ; et c) d'éclaircir les relations stratigraphiques et sédimentologiques entre les strates Paléozoïques supérieures de la région.
2. **Grant Lowey** a poursuivi ses études de la sédimentologie, la stratigraphie, et le potentiel en hydrocarbures du Groupe de Laberge et de la Formation de Tantalus dans la fausse de Whitehorse. Ses études antérieures ont révélées la présence d'inclusions fluides de pétrole et ont identifiées deux unités comme étant des roches sources possibles. Grant a aussi participé à la cartographie géologique de la partie septentrionale de ce bassin inexploré avec Maurice Colpron.

### ÉTUDES DES DÉPÔTS MEUBLES

1. **William LeBarge**, le géologue des placers de la CGY, **Valdimir Naumov** (université de Perm en Russie), et **Rob Chapman** (université de Leeds aux Royaumes Unis) étudient la sédimentologie, la stratigraphie et les caractéristiques de l'or dans les dépôts de graviers et de conglomérats de la région de la rivière Indian. Ces graviers de terrasse, de même que les conglomérats sous-jacents, font présentement l'objet de travaux d'exploration des sociétés de Boulder Mining Corporation et de Klondike Star Ltd. Cette étude devrait engendrée de nouvelles interprétations de la géologie permettant de mieux caractériser la distribution de l'or placérien dans le bassin versant de la rivière Indian et on espère d'identifier de nouvelles ressources en placers dans la région immédiate et dans les ruisseaux avoisinants. Ce projet complète l'étude de **Jim Mortensen** (université de Colombie-Britannique) portant sur la composition en éléments traces de l'or placérien du Klondike ; étude qui pourrait révéler de nouvelles sources d'or filonien.

2. **Jeff Bond** a continué son étude des sols dans les terrains non-glaciaires du Klondike en collaboration avec **Paul Sanborn** et **Scott Smith**. Cette année, Jeff a complété une étude géochimique des sols au site original de la mine Boulder Lode, sur la propriété Lone Star. Il a aussi étudié les sols gelés de plateau de la propriété Lone Star avec l'assistance de **Kathryn Denomme** de l'université de Waterloo. La thèse de baccalauréat de Kathryn porte sur la cartographie des dépôts meubles le long d'une pente d'aspect typique vers le nord sur la propriété Lone Star.
3. **Panya Lipovsky** a continué la surveillance des glissements de terrain reliés à la fonte du pergélisol dans le sud et le centre du Yukon. Grâce aux collaborations de C-CORE et d'InSAR, l'agence spatiale européenne, on a mesuré des mouvements de terrain de petite échelle à l'aide de techniques de télédétection et de relevés SPG de haute précision à cinq endroits près de Beaver Creek, de Carmacks et du lac Little Salmon. Un inventaire des glissements de terrain dans le bassin versant de la rivière Pelly a aussi été entamé.
4. **Erin Trochim** et **Panya Lipovsky** ont continuées leur compilation des données de forages du ministère des routes du Yukon afin d'en capturer des informations détaillées sur la géotechnique et le pergélisol. Ces travaux ont permis d'augmenter la banque de données telle que la route de l'Alaska est maintenant couverte de Beaver Creek jusqu'à l'est de Haines Junction.
5. **Derek Turner** et **Brent Ward** (université Simon Fraser) ont entamés en collaboration avec **Jeff Bond** une étude de l'histoire glaciaire de la propriété d'Howards Pass dans les monts Selwyn. Ces travaux forment la base de la thèse de maîtrise de Derek. Son étude comprend l'évolution tardi-glaciaire du lobe Selwyn de la couverture glaciaire de la cordillère, la cartographie des dépôts meubles sur la propriété de Pacifica Resources, et une étude géochimique des ions métalliques mobiles au travers de ce gisement de type SEDEX.
6. **Brent Ward** et **Jeff Bond** ont poursuivis leur étude portant sur l'âge de dépôts glaciaires de Reid dans le centre du Yukon. La région de la rivière Pelly fût le sujet d'échantillonnage pour des datations cosmogéniques et des téphras.
7. **Nicholas Utting** et **Ian Clark** (université d'Ottawa) étudiant, en collaboration avec la CGY, la composition chimique et en gaz nobles des eaux de sources annuelles de la montagne Bear Cave, dans la région de la rivière Fishing Branch. Ces travaux répondent aux inquiétudes des premières nations vis-à-vis les effets possibles de l'exploration pour les hydrocarbures sur les eaux souterraines.
8. **Monica Bruckner** (université de l'État du Montana) a poursuivie une étude de terrain d'un des glaciers à la source de la rivière Wheaton dans le cadre de sa maîtrise sous la tutelle de **Mark Skidmore** et **Jeff Bond**. Elle étudie les caractéristiques biogéochimiques des eaux de fonte dans un bassin périglaciaire.
9. **Stephen Horton** (université de Victoria) poursuit une étude de baccalauréat portant sur la paléogéographie du lac glaciaire de Laberge avec l'aide de **Jeff Bond** et **Peter Von Gaza** (géomatique Yukon).
10. **Antoni Lewkowicz** et ses étudiants gradués de l'université d'Ottawa ont poursuivie de nombreuses études du pergélisol à travers le territoire. En outre : a) ils enregistrent les conséquences des feux de forêt de 2004 sur la stabilité des pentes et l'accumulation de sédiments dans les ruisseaux ; b) ils étudient l'origine et la dynamique des lacs thermokastiques et des palses dans le bassin du ruisseau Wolf près de Whitehorse ; et c) ils développent des méthodes de cartographie régionale et de modélisation du pergélisol. Des études géophysiques du pergélisol et de glissements de terrain récents ont aussi été conduites en collaboration avec **Bernd Etzelmüller** (université d'Oslo, la Norvège) et les employés de la CGY.
11. **Panya Lipovsky** et **Jeff Bond** compilent une carte des dépôts meubles pour l'ensemble du territoire, à l'aide d'un financement du ministère des affaires indiennes et du nord canadien (MAINC) dans le cadre du programme de développement économique du Nord.

## ÉTUDES DÉTAILLÉES ET RELATIONS PUBLIQUES

1. **Luke Beranek** continue d'augmenter le nombre d'analyses des zircons détritiques dans les roches Paléozoïques tardives et du Trias de part et d'autre de la limite entre la marge continentale nord-américaine et les terranes de Slide Mountain et Yukon-Tanana. Cette étude forme la base de sa thèse de doctorat à l'université de Colombie-Britannique sous la tutelle de **Jim Mortensen**. En 2005, Luke a démontré que des débris provenant des terranes s'accumulaient sur la marge nord-américaine dès le Trias précoce, beaucoup plus tôt que l'on le croyait auparavant. La saison dernière, il a étendu son échantillonnage aux roches triassiques des monts Pelly, Selwyn et Ogilvie.
2. **Karen Pelletier** et **Charlie Roots** (CGC) ont entamés un guide géologique des routes yukonaises en visitant les sites géologiques d'intérêts le long de la plupart des routes du Yukon. Charlie s'est joint à **Tiffani Fraser** et **Tammy Allen** pour la préparation d'un guide de la route Dempster en collaboration avec la CGC et les Territoires du Nord-Ouest ; une version préliminaire de ce guide, de même que d'autres brochures couvrant certains segments des autres routes du Yukon devraient être disponible au publique au printemps 2007. Nous espérons compléter l'ensemble de ce projet pour le printemps 2008.

## GÉOCHIMIE ET ÉVALUATION DU POTENTIEL MINÉRAL

1. La CGC, en collaboration avec **Geoff Bradshaw**, ont complétés un relevé géochimique des ruisseaux pour une région couvrant le bassin de Kandik dans le centre-nord du Yukon, au sud du parc territorial de Fishing Branch. Le financement pour ce relevé provient du programme de développement économique du Nord du MAINC.

## RELEVÉS AÉROMAGNÉTIQUES

1. La CGC, en collaboration avec la CGY, ont débutées un programme majeur de relevés aéromagnétiques des monts Wernecke et Mackenzie. Le financement provient du programme de développement économique du Nord du MAINC. Toutefois, les pauvres conditions météorologiques au cours de l'été dernier ont empêcher la finalisation de ces relevés. On espère maintenant compléter ces relevés au début de 2007 et de publier les résultats vers la fin de l'été.

## DIFFUSION DE L'INFORMATION

La Commission géologique du Yukon diffuse de l'information en trois formats : 1) les cartes et rapports sur papier sont vendus par le Bureau d'information et des ventes en géoscience ; 2) la plupart de nos publications et bases de données récentes sont disponibles en format numérique à prix réduit ; et 3) plusieurs de nos publications sont disponibles sans frais sous format PDF sur notre site internet ([www.geology.gov.yk.ca](http://www.geology.gov.yk.ca)). La liste des rapports d'évaluation de propriétés minières disponibles en format numérique est maintenant aussi offerte par internet ([www.emr.gov.yk.ca/library](http://www.emr.gov.yk.ca/library)).

Nous sommes fier de diffuser de l'information géospatiale par l'entremise de notre service de carte interactive ('Map Gallery'), que l'on accède par le site internet de la CGY. Ce site de carte interactive est continuellement le sujet d'améliorations ; nous apprécions les commentaires des usagers.

Les publications de la Commission géologique du Yukon sont diffusées par le Bureau d'information et des ventes en géoscience. Elles sont disponible à l'adresse suivante :

Bureau d'information et des ventes en géosciences  
a/s Conservateur des registres miniers  
le ministère de l'Énergie, des Mines et des Ressources  
le gouvernement du Yukon

300, rue Main - bur. 102  
C.P. 2703 (K102)  
Whitehorse (Yukon) Y1A 2C6  
Téléphone : (867) 667-5200  
Télécopieur : (867) 667-5150  
Courriel : [geosales@gov.yk.ca](mailto:geosales@gov.yk.ca)

Pour en savoir plus sur la Commission géologique du Yukon, visitez notre page d'accueil à [www.geology.gov.yk.ca](http://www.geology.gov.yk.ca) ou communiquez directement avec :

Grant Abbott, Directeur  
Commission géologique du Yukon  
2099, 2ème Avenue  
C.P. 2703 (K10), Whitehorse (Yukon) Y1A 2C6  
Téléphone : (867) 667-3200  
Courriel : [grant.abbott@gov.yk.ca](mailto:grant.abbott@gov.yk.ca)

Rod Hill, Gestionnaire  
Commission géologique du Yukon  
2099, 2ème Avenue  
C.P. 2703 (K10), Whitehorse (Yukon) Y1A 2C6  
Téléphone : (867) 667-5384  
Courriel : [rod.hill@gov.yk.ca](mailto:rod.hill@gov.yk.ca)



# Robert E. Leckie Award for Outstanding Reclamation Practices

*Judy St. Amand<sup>1</sup>*

*Mining Lands, Energy Mines and Resources*

St. Amand, J., 2007. Robert E. Leckie Awards for Outstanding Reclamation Practices. *In: Yukon Exploration and Geology 2006*, D.S. Emond, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 77-79.

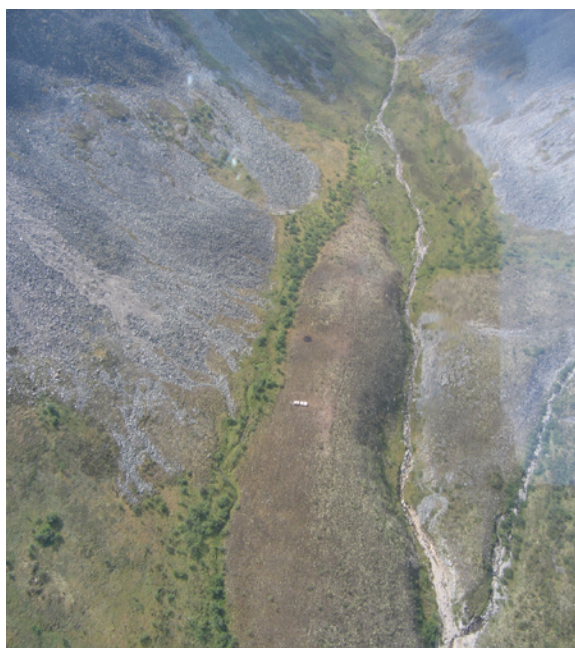
## OUTSTANDING QUARTZ RECLAMATION

### DYNAMITE RESOURCES LTD.

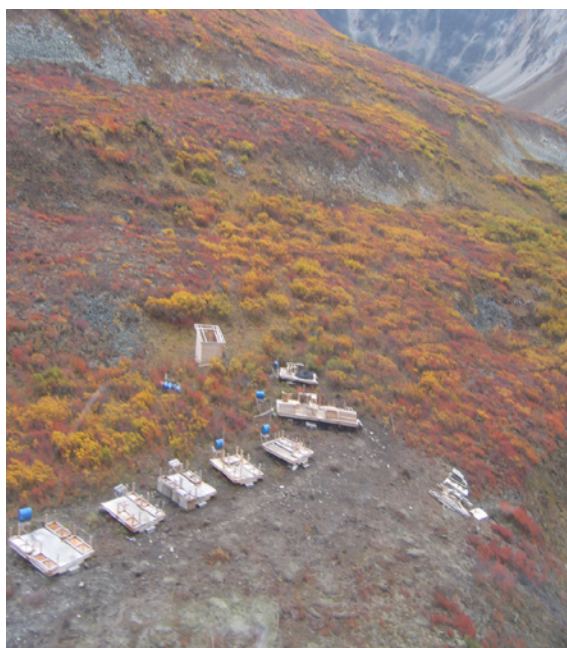
Dynamite Resources Ltd. is a junior mining company that is exploring the highly prospective Mike Lake project. The claims are located about 80 km east-northeast of Dawson City and are accessible only by air.

During initial exploration, the company discovered an abandoned camp on a nearby property (Fig. 1). Over the next month, the operator returned the area to its original pristine environment. The camp was dismantled and all material disposed of or incinerated.

The company has followed every recommended best practice at its camp, drill sites, fuel and core storage areas, as well as preparation for seasonal closure (Fig. 2). This company has gone beyond the requirements of legislation by reclaiming an area where there was no requirement for it to do so.



**Figure 1.** Abandoned camp reclaimed in Mike Lake area.



**Figure 2.** Seasonal closure, Mike Lake project.

<sup>1</sup>[judy.stamand@gov.yk.ca](mailto:judy.stamand@gov.yk.ca)

**Honourable mention:** Deloitte & Touche are the court-appointed receiver for Anvil Range Mining Corp. at Faro. Although revegetation of this site was required as part of a water use license, the work undertaken to reclaim the fresh-water reservoir and supply dam is commendable (Fig. 3).

For the revegetation program, indigenous flora was solely used. Seeds were manually broadcast using pouch-style seeders, and integrated into the soil substrate with hand rakes, as well as with harrows pulled by an ATV for selected areas. Due to this site's geographical features, hands-on seeding was needed, which was consequently very labour intensive.

Additionally, subsequent monitoring of plant growth and establishment has shown excellent results, which can be attributed to the diligence of the reclamation practices.

## OUTSTANDING PLACER RECLAMATION

### 365334 ALBERTA LTD.

365334 Alberta Limited, operating as A-1 Cats, has mined on Dominion Creek in the Dawson Mining district since 2002 (Fig. 4).

A-1 Cats management continues to address land-based reclamation on an ongoing basis. Reclamation is timely and economical by minimizing movement of material. Use of organic material has expedited natural revegetation, and although seeding is not a requirement in areas where revegetation naturally occurs, the company has experimented in some areas with spectacular results.

Their desire to enhance old workings has resulted in low-relief topography, which is not only aesthetically pleasing but a safer environment for people and wildlife.

The entire property, including areas that were disturbed prior to their arrival, is being reclaimed to present day standards. The company's Best Management Practices are a credit to the placer industry.



**Figure 3.** Reclamation of fresh water reservoir and supply dam, Faro, Yukon.

**Honourable mention:** Bardusan Placers operate in the Mayo Mining District in a narrow valley with intermittent permafrost, vast quantities of slide rock, and extensive hard rock workings from past United Keno Hill Mines activities in the area. Bardusan Placers is working upstream on Lightning Creek using systematic mining practices and long-term planning (Fig. 5). They accomplish efficient and prompt reclamation of the previous year's mining cut by using the stripping/wastes from the following year's mining.

Rather than use the creek as a conduit, which is common in narrow valleys, the Barchens, in an innovative and forward-thinking fashion, transport water to their settling ponds via an underground culvert system.

The Barchen family has responded to the environmental challenges of the regulatory era by meeting and exceeding government expectations for operational considerations, discharge standards and final reclamation of the mined properties.



**Figure 4.** A-1 Cats' ongoing reclamation, placer mining at Dominion Creek.

**Figure 5.** Natural revegetation on Lightning Creek.



