

SOUTH-CENTRAL REGION

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SUMMARY

The 2003 exploration year finished strongly thanks mainly to rising metal prices. By year end, exploration spending had registered a modest increase over 2002, continuing the trend of gradual improvement to the highest levels since 1997. However, levels continue to be well below those seen in the late 1980s.

Weather and fire conditions slowed mineral exploration activity during the summer and early fall of 2003. The dry conditions resulted in bush and road closures, however, activity increased sharply in the fall after the danger had abated. Strong metal prices, in particular for gold and copper, resulted in improved stock market performance and financing opportunities for mining shares. A highlight is that the latter part of 2003 saw more than \$40 million in financing raised for exploration projects in south-central BC, suggesting that 2004 will be a much better year.

EXPLORATION TRENDS

The gradual upward trend in exploration activity in the South-Central region continued in 2003. All indicators were at their highest levels in six years. Exploration spending is estimated at \$7.5 million (Figure 1), there were about 45 000 metres drilled (Figure 2), and there were 17 major projects in the region (Figure 3; Table 1; Figure 4).

The most popular exploration targets continue to be Cu-Au-Mo porphyries and precious-metal veins, with about 40% and 32% of spending respectively. Lesser amounts were devoted to Au-Cu skarn, magmatic and industrial mineral targets.

Given the strong interest in porphyry deposits, the majority of large projects were located in the highly prospective Quesnel terrane, and most were between Princeton, Kamloops and Ashcroft (Figure 4).

Junior companies continue to carry out most of the exploration in this region. Large producers were responsible for less than 5% of spending, however, this could change as metal prices improve and several projects advance toward production.

Spending was split nearly equally between advanced (development stage) and grassroots exploration projects. Very little was spent on mine-site exploration in 2003. As

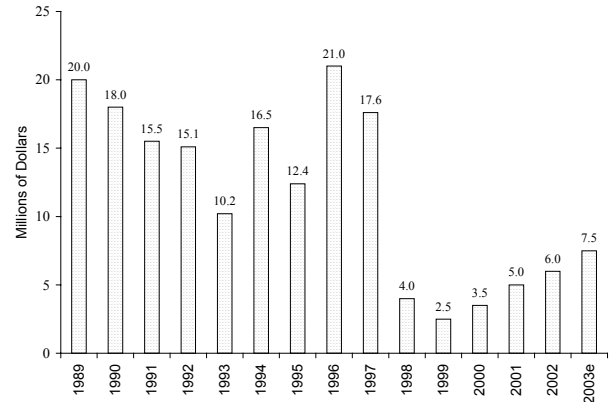


Figure 1. Annual exploration spending, in millions of dollars, South-Central Region.

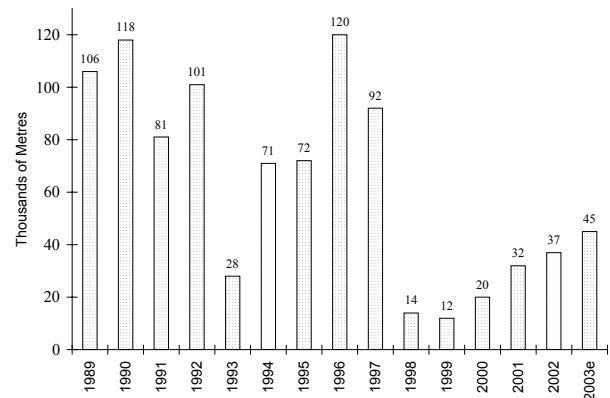


Figure 2. Annual exploration and development drilling, in thousands of metres, South-Central Region.

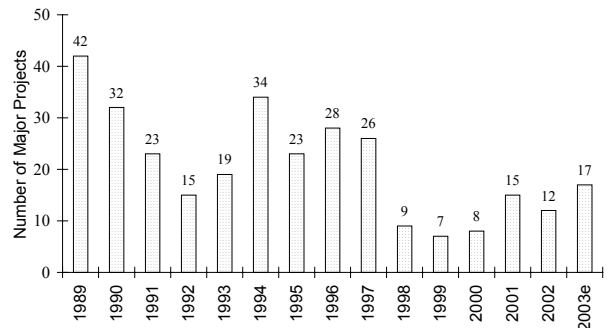


Figure 3. Number of major exploration projects per year, South-Central Region. Major projects are defined as those with trenching or drilling and expenditures exceeding \$100 000.

was the case during the last two years, the Afton mine project was by far the largest exploration program. Afton is also expected to be the largest project in 2004; a feasibility study involving a large underground development program is about to get underway (Photo 1).



Photo 1. Portal of Afton Cu-Au-Ag-Pd project, December 2003 (courtesy DRC Resources Corp.).

MINES AND QUARRIES

The region's larger operating mines and quarries are shown on Figure 4. Some of the smaller quarries operate on an intermittent or seasonal basis only.

Canada's largest copper producer, the huge, low-grade **Highland Valley Copper** (HVC; Photo 2) mine is located southwest of Kamloops and employs about 950 people. The mine is owned by a partnership of Teck Cominco Ltd. (63.9%), BHP Billiton Ltd. (33.6%) and Highmont Mining Company (2.5%). Late in the year, BHP Billiton announced it had agreed to sell its interest to private company Quadra Mining Ltd. of Vancouver, subject to a first right of refusal in favour of Teck Cominco Limited. Teck exercised that right in January 2004 and will be the 97.5% owner if the operation. In addition, the HVC partnership signed a new three-year collective agreement with its unionized workforce, retroactive to October 1, 2003.

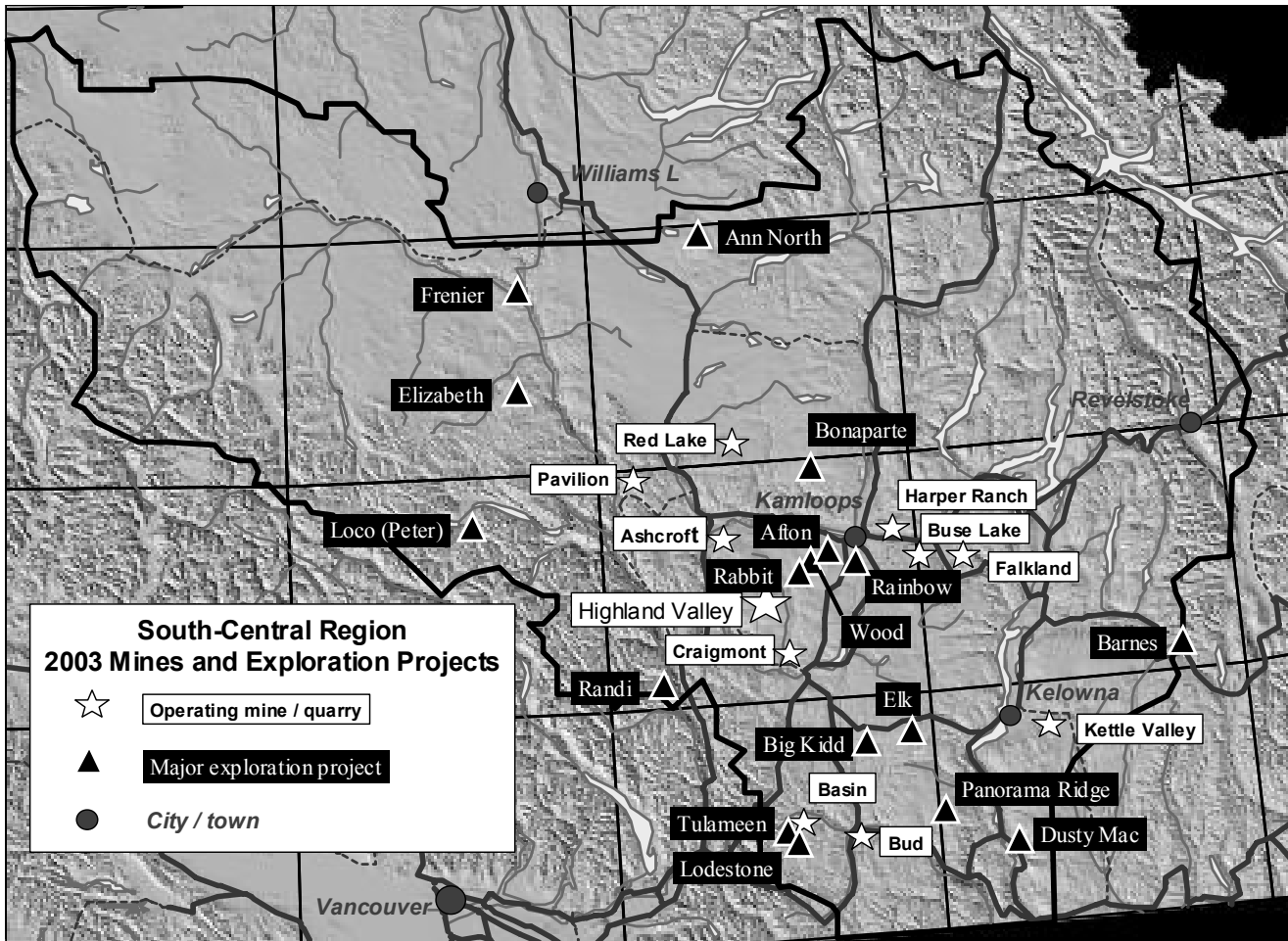


Figure 4. Mines, quarries and major exploration projects, South-Central Region, 2003.



Photo 2. Highland Valley Copper mine.

Production at HVC in 2003 was 170 400 tonnes of copper plus by-product molybdenum, gold and silver. Production is down from 2002 due to slightly lower grades, recoveries and mill throughput. Nevertheless, operating profit was up due to sharply higher metal prices, which were somewhat offset by a stronger Canadian dollar. Although the mine is scheduled to close in mid-2009, a proposal to extend the mine-life by 30 months by deepening the Valley pit is still being considered. Regionally, the company is evaluating several drill targets in the **Pimainus** area south of the mine, and has signed an agreement with Getty Copper Inc. to explore the **North Valley** claims, located northwest of the main mine property (see below).

About 20 000 tonnes of clean thermal coal was mined and sold from the **Basin Coal** project (Photo 3) in 2003. Located near the towns of Coalmont and Tulameen, the operation is a joint venture of Compliance Energy Corp. (65%) and Nissho Iwai Coal Development (Canada) Ltd. (35%). A major milestone in 2003 was the signing of a supply contract with a major cement producer. The joint venture also completed a positive scoping study and is studying the feasibility of establishing a 50 megawatt wood waste / coal-fired power plant near the mine.

The Basin coal, which is high volatile bituminous B and C in rank, is being trucked to a newly constructed wash plant on the Similco site near Princeton, about 45 kilometres away. Clean coal is being marketed to industrial users in the Lower Mainland and southern British Columbia. The project, with measured and indicated resources of 19 million tonnes, has a permit for up to 250 000 tonnes of annual coal production.

Industrial minerals operations continue to be an important part of the regional economy. The Kamloops cement plant and **Harper Ranch** limestone quarry of Lafarge Canada Inc., with an annual capacity of about 220 000 tonnes of cement, operated on an intermittent basis during the year. Lafarge also draws materials from the **Falkland** and **Buse Lake** quarries, which produce gypsum and alumina-silica rock respectively. Pacific Bentonite Ltd. mined a bulk sample of about 3000 tonnes



Photo 3. Basin coal mine, summer 2003.

of alumina-rich shale from the **Hat Creek** quarry. This material was tested for use in cement making at the Kamloops plant with favourable results. As much as 10 000 tonnes could be mined in 2004, and there may also be potential to supply material to other Lafarge plants in the future.

At **Pavilion** north of Cache Creek, Graymont Western Canada Inc. (formerly Continental Lime Ltd.) operates a limestone quarry and lime kiln. The plant has recently operated at slightly more than half its rated capacity of 180 000 tonnes per year. Most of the product is used in pulp mills and mines, and the operation employs about 37 people. Graymont is currently studying the feasibility of a change in the surface mining system that would incorporate a raise and glory hole.

IG Machine and Fiber Ltd., a subsidiary of IKO Industries Ltd., operates the **Ashcroft** basalt quarry and roofing granule plant. The plant produces about 250 000 tonnes of roofing granules in six distinct colours. The granules are shipped by rail and truck to IKO asphalt shingle plants in Calgary, Alberta; Sumas, Washington; and elsewhere in North America. About 75 people are employed.

Further along the Thompson River to the northeast, the **McAbee** and **Walhachin** quarries supply railroad ballast for the Canadian National and Canadian Pacific railways respectively. The railroads also have several other quarries in the region.

Craigmont Mines owns the **Craigmont** magnetite tailings operation, located near Merritt. Tailings from the old Craigmont copper mine are processed to recover up to 70 000 tonnes of magnetite annually, however, only about 45 000 tonnes were recovered in 2003. The plant is operated 6 to 8 months per year but product is trucked from the property for 12 months of the year. The magnetite is used in coal washing plants in British Columbia, Alberta and Washington State. The company is evaluating other magnetite sources, both on and off the property, as well as potential markets for hematite, which may also be recoverable.

TABLE 1. MAJOR EXPLORATION PROJECTS, SOUTH-CENTRAL REGION, 2003.

Property	Operator	MINFILE	NTS	Commodity	Deposit Type	Work Done
Afton	DRC Resources Corp	092INE023	92I/10E	Cu, Au, Pd, Ag	Alkalic porphyry	~ 27 ddh, 15 000 m; scoping study; IP; road work
Ann North	GWR Resources Inc	092P 115	92P/14W	Cu, Au	Alkalic porphyry	~ 16 ddh, 2600 m
Barnes Creek	Columbia Yukon Explorations Inc	none	82L/01W	Au	Mesothermal vein	5 trenches, approx. 750 m; geochem, 1527 soils
Big Kidd	Christopher James Gold Corp	092HNE074	92H/15E	Cu, Au	Alkalic porphyry	9 ddh, 1577 m; 3 trenches, 144 m
Bonaparte	North American Gem Inc	092P 050	92P/01W	Au, Ag	Mesothermal vein	15 ddh, 652 m; trenching and stripping
Dusty Mac	Ecstall Mining Corp	082ESW078	82E/05E	Au, Ag	Epithermal vein	5 ddh, 1213 m
Elizabeth	J-Pacific Gold Inc	092O 012	92O/02E	Au, Ag	Mesothermal vein	trenching; road; geochem; geol
Elk (Siwash North)	Almaden Minerals Ltd	092HNE096	92H/16W	Au, Ag	Mesothermal vein	30 ddh, 6569 m
Frenier	BBF Resources Inc	092O 072	92O/08W	Perlite	Industrial mineral	180 tonne bulk sample; processing & market testing
Loco (Peter Vein) [Bralorne]	Bralorne-Pioneer Gold Mines Ltd	92JNE164	92J/15W	Au, Ag	Mesothermal vein	16 ddh, ~1500 m; trenching; underground development and rehab; mill and tailings pond construction
Lodestone Mountain	Sargold Resource Corp.	92HSE034	92H/07E	Fe, V, Pt, Ti	Magmatic	Drilling
Panorama Ridge	Goldcliff Resource Corp	082ESW052	82E/05W	Au	Skarn	17 ddh, 1920 m; trenching; geol; IP geophys; geochem
Rabbit North	Auterra Ventures Inc	092INE045, 147, 130, 114, 071	92I	Cu, Au	Alkalic porphyry, vein	trenching; drilling
Rainbow (Afton Area)	Abacus Mining and Exploration Corp	092INE028	92I/09W	Cu, Au, Ag, Pd	Alkalic porphyry	4 ddh, 1865 m, 3-D IP and mag survey, 61 km
Randi	Locke B. Goldsmith	092ISW054	92I/04E	Au, Ag, Cu	Mesothermal vein	31 ddh, 2083 m; 3 trenches
Tulameen (DP Zone)	Bright Star Ventures Ltd/Cusac Gold Mines Ltd	092HSE120, 142, 035, 039	92H/07W	Cu, Pt, Pd, Au	Magmatic?	4 ddh, ~600 m; geochem, 1986 soils; prosp; trenching; channel sampling
Wood, Beaton	Green Valley Mine Inc / Lakewood Mining Co Ltd	092INE165	92I/10E	Cu	Alkalic porphyry	8 ddh, 3103 m; IP; geochem

At its plant in Kamloops, Western Industrial Clay Products Ltd. manufactures cat litter, barn deodorizer, industrial absorbents, garden mineral supplements and potting soils. The products are mainly prepared from diatomaceous earth mined from the **Red Lake** quarry northwest of Kamloops, and bentonite mined from the **Bud** quarry at Princeton. Garden supplies are developed from "leonardite" mined at Red Lake. Leonardite is a low-grade coaly material that is rich in humic acid. The company also mined a 10 000 t bulk sample of bentonite from the **Bud V** claim, and a 10 000 t bulk sample from the **Bee 1&2** property, both located near Princeton.

The **Z1** (Ranchlands) zeolite quarry near Cache Creek is a small-scale intermittent producer owned by the Mineral Products Division of Dynatec Corporation. The

ore is shipped to a plant in Lethbridge, Alberta for processing. The zeolite is used mainly for agricultural purposes.

The nearby **Z2** quarry and a processing plant in Ashcroft are owned by Industrial Mineral Processors, a private company based in Calgary. The plant produces industrial absorbents for oil field clean-up, soil conditioner, barn deodorizers, feed binders, and cat litter.

At Princeton, Zeo-Tech Enviro Corp. owns the **Zeo** (Bromley Vale) zeolite quarry, where a 4000 tonne bulk sample was blasted in 2002. The deposit is reported to have a measured resource of 350 218 tonnes, an indicated resource of 214 310 tonnes, and an inferred resource of 297 000 tonnes.

In April 2003, Zeo-Tech and partner C2C Zeolite Corp. formed an operating company, United Zeolite Products Ltd., which in turn signed a five-year supply contract with Hallibuton Energy Services Inc. for 30 000 tonnes of zeolite. The material will be used to produce lightweight cement for oil and gas wells. At the end of 2003 about 2840 tonnes had been delivered to Hallibuton, at a price reported to be \$25/tonne (F.O.B. Princeton). United has begun engineering studies and design work for constructing a zeolite micronizing plant at Princeton. In addition, Zeo-Tech is working to develop further markets in the shotcrete, aquaculture, horticulture and agriculture fields. Also near Princeton, Canmark International Resources Inc. is continuing to develop markets for zeolite from its **Sun** quarry.

Okanagan Opal Inc. produces attractive fire opal gemstones and jewelry from the **Klinker** property, located west of Vernon. Opal occurs as fracture and vesicle-fillings in andesitic to basaltic laharic breccia of the basal Kamloops Group (Eocene). Presently the gemstone jewelry is aimed mainly at the BC tourist-retail market, however, the company aims to develop other North American markets.

Decorative rock and dimension stone are produced at numerous small quarries throughout the region. The best known producer is the **Kettle Valley Stone Company** of Kelowna which sells flagstone, ashlar, facing stone and landscape rock mined from the **Nipple Mountain, Canyon** and **Gemini** quarries. Rock types include dacite ash, granite gneiss and basalt.

South of Revelstoke, D.G. Olsson produces small amounts of micaceous quartzite flagstone and facing stone by hand at the **Begbie** quarry. Other small, hand-operated flagstone quarries exploit micaceous quartzite in the North Thompson area.

Landscaping rock is produced at numerous sites, including the **Wing** pit near Princeton (red shale), the **Bailey, Leger 2** and **Josh 1** pits south of Vernon (granite), the **Broken Rock Ranch** quarry near Westwold (red lava), the **Pacific Silica** quarry at Oliver (white quartz and pegmatite), and the **Soapy Shale pit** near Armstrong (rusty gneiss). Other prospects being evaluated for small-scale quarrying include the **Barbecue-Landscape** claims near Clinton (red, green and black lava), and the **View** and **Wol** claims near Westwold (lava).

BBF Resources Inc. extracted a 180 tonne bulk sample from the past producing **Frenier** perlite quarry located near Blackdome Mountain, west of Clinton. The material was trucked to Abbotsford for pilot plant testing. Samples will be sent to possible users in the horticulture and building materials fields. A resource of 375 000 tonnes is reported from previous drilling.

Several other moderate to large-sized metal mines and developed prospects remain on care and maintenance

status, awaiting higher metal prices or discovery of additional ore. In 2002, Imperial Metals Corp. sold the **Similco** porphyry copper-gold mine, which has been closed since 1996, to Envirogreen Technologies Ltd. Envirogreen is involved in the remediation of special wastes, including hydrocarbons, and has set up a plant on the mine site. Imperial still owns some of the real estate holdings and mining equipment. Similco has a resource of 142 million tonnes grading 0.397% Cu (plus Au) in the area of Pits 2 and 3 on the Copper Mountain side of the property.

The dormant **Blackdome** gold-silver mine, located northwest of Clinton, also remained on care and maintenance throughout the year. J-Pacific Gold Inc. consolidated mine ownership by purchasing the 50% held by Jipangu Inc. This underground mine, developed on narrow, high-grade epithermal quartz veins, operated in the 1980's and again briefly from October 1998 to May 1999. The 200 tonne-per-day mill is intact and the property has an inferred mineral resource of 124 120 tonnes grading 12.8 g/t Au and 33.7 g/t Ag. In 2003 J-Pacific conducted surface surveys on the **Blackdome South** property and discovered evidence of buried mineralization.

Orphan Boy Resources Inc. owns the **Goldstream** copper-zinc mine-mill complex north of Revelstoke. In 2003 the company studied the feasibility of using the 1000 tonne per day Goldstream mill to process copper-gold ore from the **Willa** property, located 230 kilometres south near the town of Silverton. Orphan Boy also has several other good base-metal prospects in the Big Bend area, including the stratiform **Rift** Zn-Pb-Cu deposit, and the **Spire** Cu-Zn massive sulphide occurrence, which is located seven kilometres southwest of the Goldstream mill.

DEVELOPMENT PROJECTS

The largest exploration and development project in the region is the **Afton** alkalic porphyry copper-gold-palladium-silver project of DRC Resources Corp., located just outside Kamloops. The company continued drilling beneath and adjacent to the Afton pit, which a subsidiary of Teck Cominco Ltd. mined between 1977 and 1987. Later production came from the Pothook, Crescent and Ajax pits. Teck closed the operation in 1997.

DRC mainly drilled deep infill holes in the Afton main zone, which extends southwesterly from the bottom of the pit. The zone is now known to measure 800 m in length, 90 m in average width and to extend at least 300 m below the bottom of the open pit. The drilling results were incorporated into a December 2003 mineral resource calculation that concluded that measured and indicated resources total 68 700 000 tonnes at a 0.70% copper equivalent cutoff. The measured resource is reported as 9 540 000 tonnes grading 1.289 % Cu, 0.945 g/t Au, 3.438 g/t Ag and 0.117 g/t Pd, and the indicated resource

is 59 160 000 tonnes grading 1.049% Cu, 0.829 g/t Au, 2.487 g/t Ag and 0.119 g/t Pd. Total contained product in these categories is about 744 000 tonnes of copper (1.64 billion pounds) and 58 tonnes of gold (1.9 million ounces). An additional inferred resource is reported to be 7 450 000 tonnes grading 0.924% Cu, 0.784 g/t Au, 2.341 g/t Ag and 0.12 g/t Pd.

DRC also completed an advanced scoping study toward the potential development of an underground panel (block) caving operation at 9000 tonnes per day, with a mine life of 17 years. The company intends to complete a full feasibility on the project, and raised about \$24 million in November to continue this work. In December, an exploration decline was collared at an elevation of about 500 m in the pit, just above the current water level (Photo 1). The decline will provide underground access for a 25 000 m definition drilling program, as well as bulk sampling and engineering studies related to the feasibility study.

On the exploration front, DRC also drilled several holes southwest of the **Pothook** pit. In this area gold mineralization extends for a strike length of at least 200 m with a width of 100 m. Several of the holes had long intersections with anomalous gold values. The best hole was PO-04, which cut 156 m grading 0.72 g/t Au; mineralization begins 6 m below surface. Hole PO-02 was drilled beneath the Pothook pit and cut a 217 m intersection, from 344 to 561 m, grading 0.484 g/t Au and 0.266 % Cu.

It appears that DRC's Pothook gold mineralization may be the same zone, or an extension of the "**Coquihalla West**" gold zone, that Teck tested with 14 holes in 1996, but never described in public reports. At that time, this author (Cathro, 1997) reported that Teck had discovered gold-bearing but copper-poor mineralization adjacent to the Pothook pit. Core from several holes was viewed with Graeme Evans of Teck in March of 1996. Several of the holes had long intersections of anomalous gold associated with chlorite and disseminated pyrite (locally up to 25%), High-grade sections were also verbally reported. For example, a section in hole CO-96-6 assayed 7.2 g/t Au over 12 m, and an interval in hole CO-96-7 assayed 35 g/t Au and 0.12% Cu over 6 m. The better grade section was hosted by chlorite and serpentine-altered Nicola volcanics with trace sulphides. This type of gold-rich mineralization is unusual and could be similar to the QR deposit near Quesnel. It may represent a new bulk tonnage gold target in the Iron Mask district and elsewhere in the Quesnel terrane.

Development work resumed at the **Bralorne** mine site in the Gold Bridge mining district west of Lillooet. The Bralorne mines operated from 1897 to 1971, and the district remains the most prolific historic gold district in the province, with over 4.1 million ounces produced. A Mine Development Certificate was issued for a new mine in 1995, however, since then low gold prices have

delayed development. Resource calculations reported at that time gave 406 584 tonnes at a grade of 10.6 g/t Au above the 800 level in the Bralorne mine, and 26 115 tonnes grading 9.6 g/t Au for the Peter vein on the Loco property. Gold mineralization occurs in mesothermal quartz veins.

During 2003, Bralorne-Pioneer Gold Mines Ltd. resumed construction of a 125 tonne-per-day pilot plant test mill and began construction of a tailings pond. Trenching and drilling were done in the area of the Peter, Cosmopolitan and Big Solly veins on the Loco property. Bralorne also did rehabilitation work on the 800 level in the Bralorne mine. In early 2004 Bralorne plans to mine a 6000 to 8000 tonne bulk sample from the Peter vein, which will be processed in the pilot mill.

Work on the **Elk (Siwash North)** project (Photo 4) of Almaden Minerals Ltd. may lead to another high-grade underground gold producer. Located southeast of Merritt and just off the Coquihalla Connector highway, this deposit produced over 50 000 ounces gold in direct-shipping ore from open pit and underground operations between 1992 and 1995. Grades were consistently high, averaging about 96 g/t Au. The most recent resource calculation, which was done after completion of drilling in 2000, reported indicated and inferred resources as 111 744 tonnes grading 39.5 g/t Au.



Photo 4. Drill at Elk project with Siwash North pit in background.

The company conducted a major drilling campaign in 2003 to further define resources in the Siwash North (B) and WD veins. Over 6500 metres were drilled and both veins yielded numerous narrow, high-grade intersections. These results will be incorporated into a new resource calculation.

Almaden also began evaluating possible mill and tailings storage sites, with the goal of putting the property into commercial production. A 110 tonnes per day, modular, gravity/flotation mill was purchased from a mine in Alaska and transported to a site near the property. The mill includes power generators, a partial assay lab, and furnace room equipment.

The **McKinnon Creek (J & L)** polymetallic deposit, located north of Revelstoke, was acquired by BacTech Mining Corporation late in the year. The J & L Main zone comprises an arsenopyrite-bearing massive sulphide body. A 1996 resource calculation showed 3.6 million tonnes grading 7.24 g/t Au with additional Ag, Zn, and Pb credits. The company has developed bioleaching technology for treatment of refractory ores and plans to conduct prefeasibility studies.

The largest potential development in the region is the **Prosperity** porphyry gold-copper deposit of Taseko Mines Ltd., located southwest of Williams Lake. The most recent information from the company lists estimated measured and indicated resources at 491 million tonnes grading 0.22% Cu and 0.43 g/t Au.

EXPLORATION PROJECTS

Porphyry and Related Targets

Higher copper and gold prices and good success reported from Afton, Mt. Polley, Red-Chris and other advanced porphyry projects in northern BC is perking interest in copper-gold porphyry deposits in the Quesnel terrane.

Abacus Mining and Exploration Corp. continued work on their large **Afton Area** property package, which was optioned from Teck Cominco Ltd. The claims are located in the Iron Mask batholith and include the Rainbow, Crescent and DM-Audra alkalic porphyry Cu-Au occurrences, as well as the recently closed Ajax West and Ajax East pits. Abacus focused their interest on the **Rainbow** property. The company completed a large 3-D IP and magnetic survey, and drilled four deep holes on the Rainbow #2 Cu-Au zone. This deposit has a reported resource of 15 900 000 tonnes grading 0.528% Cu with undefined Au, Ag, Mo and Pd values. A high-grade core is suggested by Teck hole 97-05 which cut 159 m grading 1.078% Cu and 0.322 g/t Au. The 2003 holes hit only narrow intervals of high-grade mineralization at depth; the best was 9.0 m grading 2.10% Cu and 0.55 g/t Au. About 10 000 m of drilling is planned for 2004.

South of the Iron Mask batholith, Green Valley Mine Inc. and Lakewood Mining Company Ltd. drilled the **Wood** property. The eight drill holes tested Induced Polarization and Mobile Metal Ion geochemical anomalies. They intersected Nicola Group volcanics with some intrusive dikes, however no significant metal-bearing mineralization was encountered.

A little further southwest, midway between the Afton and Highland Valley Copper mines, Auterra Ventures Inc. conducted trenching on the **Rabbit North** property. The targets are alkalic porphyry Cu-Au deposits and porphyry-related veins, similar to the Snip mine in northwest BC. The latter is suggested by a 1997 drill hole which intersected 15.4 g/t Au over 8 m.

G W R Resources Inc. drilled 16 holes on the North Zone of the **Ann** claims near Lac La Hache to test alkalic porphyry Cu-Au mineralization associated with a one kilometre long magnetic anomaly. Several of the holes intersected interesting values, such as hole 03-3 with 48 m grading 0.41% Cu and 0.07 g/t Au, and hole 03-10 with 9 m grading 0.57% Cu and 0.36 g/t Au. Just after year-end, Candorado Operating Company Limited announced that it would option the **Spout Lake** and **Mac** claims from G W R. These claims are located to the west and northeast. Two holes were drilled by Nustar Resources Inc. on the **Christmas Lake** porphyry/skarn gold project, located northeast of 100 Mile House.

On the **Big Kidd** property near Merritt, Christopher James Gold Corp. drilled 9 holes and dug three trenches to test alkalic porphyry gold-copper mineralization hosted by the Big Kidd breccia. Broad intervals of low-grade mineralization were encountered, for example, hole 2003-07 intersected 61.59 m grading 327 ppb Au and 1464 ppm Cu.

North of Princeton, Bearclaw Capital Corp. acquired the **Axe** alkalic porphyry Cu-Au prospect. Previous drilling that totaled about 14 000 m in 185 drill holes, defined four mineralized zones with an aggregate indicated resource of 39 100 000 tonnes grading 0.39% Cu (at a 0.25% Cu cut-off), along with an inferred resource of 32 000 000 tonnes of similar grade. The gold content has not been determined. The overall resource includes an inferred oxide resource of 8 500 000 tonnes grading 0.54% Cu.

Near Little Fort, New Cantech Ventures Inc. and Providence Exploration Corp. optioned the **Bill** and **Cross** claims. One hole was drilled on the Bill property to test anomalous gold, copper and molybdenum values contained in soils and altered felsic intrusive float. Nicola Group volcanic and sedimentary rocks underlie most of the area. A little further to the northwest in the Little Fort belt, Electrum Resources Corp. optioned their **Deer Lake** porphyry/skarn property to Azteca Resources Ltd., and their **Friendly Lake** alkalic porphyry property to Lithic Resources Ltd.

Getty Copper Inc. conducted limited surface surveys on the **North Valley** calc-alkalic porphyry copper-molybdenum prospect in the Highland Valley. Late in the year, Getty announced the signing of a memorandum of understanding with Highland Valley Copper (HVC) to explore and develop the property. Previous work by Getty outlined two large, intense IP chargeability anomalies on this property, which is located northwest of the HVC operation. Further IP surveys and drilling are planned for 2004.

The HVC agreement does not include the **Getty North** or **Getty South** porphyry copper deposits or other prospects on Getty's large Highland Valley property holding. Previous work at Getty North defined a drill indicated and inferred resource of 72.1 million tonnes grading 0.31% Cu, including 10.0 million tonnes of oxide grading 0.40% In late 2003 Getty raised \$2 million which it plans to use for further exploration and development of these deposits.

Vein Targets

Mesothermal or epithermal gold prospects are an attractive target for small companies because they offer potential for near-term, high-grade production and fast return on investment.

J-Pacific Gold Inc. conducted extensive road building and trenching on the **Elizabeth** property located north of Lillooet. Trenching of a soil anomaly discovered several new narrow but very high-grade mesothermal gold-quartz veins in an area named the **Southwest vein zone** (Photo 5). For example, surface chip sampling returned values ranging up to 194.33 g/t Au and coarse metallic gold was observed in some vein exposures. The new veins are some 400 metres away from previously known veins like the Main and West veins, which were explored by underground work in the 1940s and 1950s, and again in 1990. Interesting Au, Ag, Cu and Mo results were also returned from the No. 9 area to the northwest. As noted above, J-Pacific also owns the nearby **Blackdome** gold-silver mine/mill complex, which is currently on standby but could be used for custom milling if sufficient ore can be defined at Elizabeth.

North American Gem Inc. optioned the **Bonaparte** gold vein property (Photo 6) northwest of Kamloops, which hosts at least eight narrow veins with potential for high-grade gold. Surface mining from the Gray Jay and Crow vein in 1994 produced about 3700 tonnes of high-grade ore which was trucked to the Trail smelter. North American tested several veins with 15 drill holes and trenching; some results were encouraging. The company is considering an underground program for 2004.

Locke B. Goldsmith explored the **Randi** property, located northwest of Boston Bar, by means of a major drilling project in 2003. The target is mesothermal Au veins.



Photo 5. Tom Illidge at the Southwest vein zone gold discovery, Elizabeth property (courtesy J-Pacific Gold Inc.).



Photo 6. Trenching on the Eagle vein, Bonaparte gold property (courtesy North American Gem Inc.).

Ecstall Mining Corp. and Eldorado Gold Corp. drilled several holes beneath and adjacent to the **Dusty Mac** Au-Ag mine, a past producing low-sulphidation epithermal breccia body located near Okanagan Falls. A total of 93 372 tonnes was mined from a small open pit in 1975 and 1976. The average recovered grade was 6.49 g/t Au and 113 g/t Ag. The 2003 holes were designed to test a structural reinterpretation of vein geometries in that area. Unfortunately, several of the holes did not reach bedrock

due to thick overburden and were abandoned. The other holes were unsuccessful in locating the veins and Eldorado has now dropped the option. Ecstall shifted its focus to surface work on several other targets including the Chalcodony zone and Banded vein. The mineralization, structural setting and host lithologies have many similarities to the Kettle River mine in northern Washington State, where recent discoveries have been made.

Ecstall also optioned the nearby **Vault** epithermal Au-Ag property, which Inco Ltd. explored with 181 drill holes between 1982 and 1990. The North vein is a narrow quartz-carbonate-adularia structure with an indicated resource of 152 000 tonnes grading 14 g/t Au. The Main zone is reported to have a resource of 1.55 million tonnes at 2.49 ppm Au. Ecstall is compiling and reinterpreting the large data set.

Almaden Minerals Ltd. conducted grassroots prospecting in the Merritt-Spences Bridge area for low-sulphidation epithermal Au-Ag prospects. This work was a follow-up from successful prospecting in 2001 that resulted in staking of the **PV** claims on Prospect Creek. Float sampling returned up to 43.34 g/t Au with anomalous Ag, As, Sb, Hg and Mo. A small IP survey completed in 2003 identified several linear resistivity features that may represent vein zones.

In 2003 Almaden staked the **NIC** claims to cover quartz veins with grab samples assaying up to 23.6 g/t Au and 180 g/t Ag and chip samples up to 6.15 g/t Au over 0.5 m. The **SAM** claims were staked to cover a 6 m wide vein zone with anomalous Au values.

Further to the northwest and west of the town of Cache Creek, Wyn Developments Inc. optioned the **Blustry Mountain** property which hosts a large alteration zone with a coincident polymetallic soil anomaly. The very large **Rand** property, which surrounds the Blustry Mountain property was also optioned.

North of Kamloops, Molycor Gold Corp. conducted surface rock chip sampling and magnetometer surveys on the past producing **Windpass** gold mine property. Between 1916 and 1944, the mine is reported to have produced 93 435 tonnes of quartz-sulphide vein material with a recovered grade of 11.47 g/t Au and minor Ag and Cu values. Molycor also conducted metallurgical studies on a 50 kilogram composite bulk sample, as part of an investigation into the feasibility of re-processing about 40 000 tonnes of dump material.

In the Gold Bridge mesothermal gold district, Mill Bay Ventures Inc. drill-tested the **California** vein on the BRX property with good results. The company also carried out soil surveys and trenching. Mill Bay plans to drift on the vein to get a better idea of grade. Some 15 km to the north, Linux Gold Corp. explored the **Ty** property, however, results were disappointing. Also in the Gold

Bridge district, Menika Mining Ltd. conducted limited surface sampling on the **Reliance** property with encouraging results.

Columbia Yukon Explorations Inc. acquired the **Barnes Creek** grassroots gold target in the Monashee Pass area from a Nelson-based prospecting syndicate. Several creeks in the area carry placer gold and the company focused their search for a bedrock source on the ridge south of Keefer Lake. A large soil survey outlined several strong gold-arsenic anomalies which the company plan to test by excavator trenching.

Also near Monashee Pass, New Cantech Ventures Inc. re-opened a trench on the **Mac** property. Sampling returned 16.8 g/t over 12.5 m.

West of Vernon, Solomon Resources Ltd optioned the **Bouleau** property, known for narrow high-grade gold-quartz veins hosted by intrusive rocks.

The **Blackhorn** property, located southwest of Williams Lake, was optioned by Skeena Resources Ltd. The property hosts a number of both high-grade gold bearing quartz-carbonate veins and base-metal veins in a complex geological environment.

Skarn Targets

A few kilometres east of the historic Nickel Plate gold mine, the **Panorama Ridge** gold skarn property has numerous targets including the Panorama, Epic and Castle areas. In the fall, Goldcliff Resources Corp. drilled 19 holes and by year-end assays were reported for three holes. Hole 23003 cut an encouraging intersection of 77.02 m grading 0.93 g/t Au. This hole was drilled beneath an old Placer Development trench which returned 0.59 g/t Au across 88.93 m including 1.26 g/t Au over 22 m.



Photo 7. Drill at York prospect with Nickel Plate mine in background, Panorama Ridge gold property (courtesy Goldcliff Resources Corp.).

Magmatic Targets

Joint venture partners Bright Star Ventures Ltd. and Cusac Gold Mines Ltd. drill-tested the **DP** copper-platinum group element target on the western margin of the Tulameen ultramafic complex. Previous soil sampling identified anomalous Pt-Pd-Cu-Au values in soils associated with an IP chargeability anomaly. The holes intersected gabbro and hornblende clinopyroxenite targets in the Tulameen ultramafic complex, but no results were announced by year-end. Bright Star did announce that it discovered a new platinum occurrence within the central dunite core of the complex. Grab samples of serpentinized, chromite-bearing dunite returned values ranging from 0.54 g/t to 24.9 g/t Pt.

Nearby to the south, Sargold Resource Corp drilled the **Lodestone Mountain** iron deposit. The deposit is known to contain a large, low-grade magnetite-vanadium-titanium resource. Anomalous platinum values have also been reported.

Late in the year Goldrea Resources Corp and Molycor Gold Corp drilled two holes to test the **Dobbin** Cu-Pt-Pd prospect west of Kelowna. A deep hole in 1997 returned an impressive 111 m intersection grading 0.19% Cu, 0.41 g/t Pt and 0.35 g/t Pd in the Central Anomaly zone. The 2003 drilling tested the Kenny 2000 zone, located 500 m to the west. The holes intersected interesting values hosted by hornblende gabbro. For example, hole D-03-2 cut 6.1 m grading 0.15% Cu, 0.39 g/t Pt and 0.26 g/t Pd. The origin of the unusual mineralization at Dobbin is debatable because it has both hydrothermal ("porphyry") and magmatic features. A good review of the mineralization and its possible genesis was presented by Nixon and Carbo (2001).

Argent Resources conducted limited soil geochemical surveys on the **Iron Lake** Cu-Au-Pt-Pd property located northeast of 100 Mile House. The property is underlain by a mafic/ultramafic intrusive complex that intrudes Nicola volcanic rocks, and there is potential for porphyry or magmatic mineralization.

At the **Fir** property north of Blue River the focus was on metallurgical studies. The property is owned by Commerce Resource Corp. and hosts a significant

carbonatite-hosted tantalum-niobium phosphate deposit. Indicated resources are now 5.65 million tonnes grading 203 g/t Ta₂O₅ and 1074 g/t Nb₂O₅ with an additional inferred resource of 6.74 million tonnes at the same grade. Commerce also owns the **Verity** deposit, which lies a few kilometres to the north, and has a resource of 3.06 million tonnes grading 196 g/t Ta₂O₅, 646 g/t Nb₂O₅ and 3.2% P₂O₅.

Coal and Coal Bed Methane Targets

The Tertiary basins of southern BC continue to receive interest for their coal and coalbed methane (CBM) potential. Petrobank Energy and Resources Ltd. conducted seismic surveys over the **Princeton** basin and, depending on results, were considering a five-hole pilot test CBM project for late in the year or 2004. At **Merritt**, Forum Development Corp. planned three short holes to test coal and CBM potential in the Middlesboro collieries area south of town. The Province is researching ownership and considering disposition of CBM rights for the **Hat Creek** basin, which is estimated to contain more than 5 billion tonnes of impure high volatile bituminous coal.

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