

# SOUTH-CENTRAL REGION

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## SUMMARY AND TRENDS

For the sixth straight year, exploration activity increased in South-Central BC. Spending on exploration is estimated at about \$35 million, up sharply from the \$21 million spent in 2004 (Figure 4.1). The spending levels were helped by the very large underground work program at the **New Afton** project, which accounted for about half the total. Drilling activity was even at about 110 000 metres (Figure 4.2). The number of major projects, *i.e.*, those with drilling or trenching and over \$100 000 in spending, is estimated at 33, compared with 29 in 2004 (Figures 4.3 and 4.4, Table 4.2).

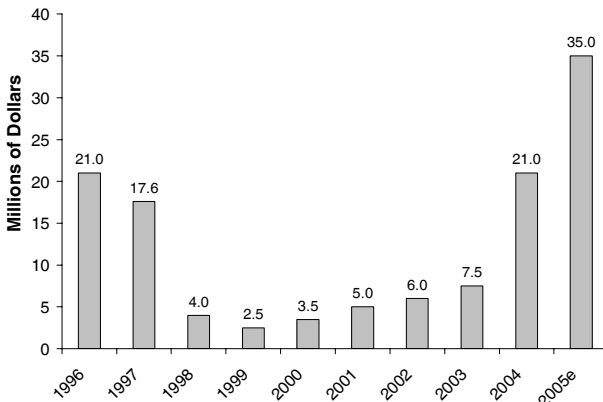


Figure 4.1. Annual exploration spending, in millions of dollars, South-Central region.

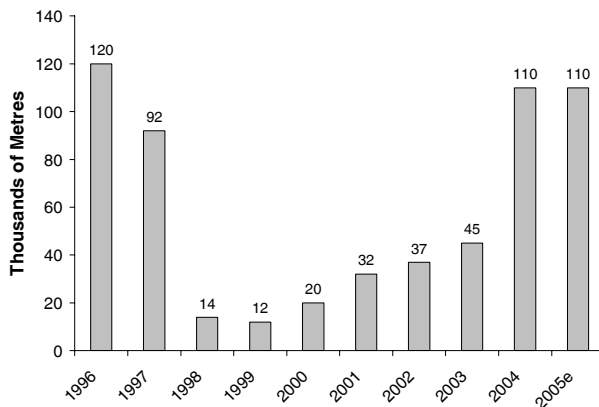


Figure 4.2. Annual exploration and development drilling, in thousands of metres, South-Central region.

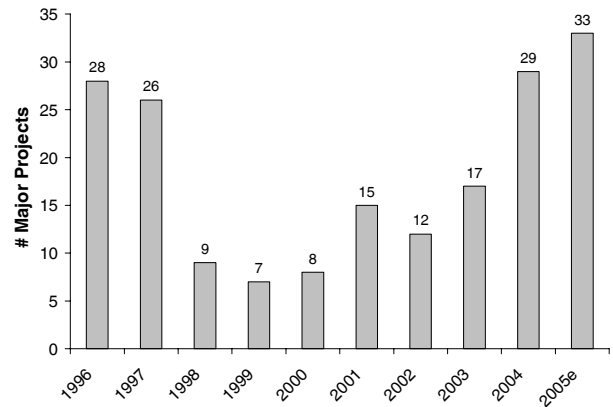


Figure 4.3. Number of major exploration projects per year, South-Central region.

In terms of mining activity, the highlight for the year was the announcement of the five-year mine-life extension of **Highland Valley Copper**, to 2013. This will include a push-back of the **Valley** pit and re-opening of the **Highmont** east pit. Several of the projects are undergoing advanced exploration, environmental review, permitting or feasibility studies and could enter production in the future. The most advanced are **New Afton**, **Elk** and **Prosperity**.

Exploration activity continues to be led by junior companies, which were responsible for over 90% of the investment. These companies are primarily targeting bulk-mineable copper-gold and copper-molybdenum porphyry deposits, high-grade gold-silver veins, and stratiform polymetallic massive sulphide deposits. A resurgence of interest in molybdenum porphyry deposits is noted.

Several promising discoveries or significant extensions of known deposits were made during the year, including **Skoonka Creek** (gold-silver), **Ruddock Creek** extension and Oliver Creek zone (zinc-lead-silver), **Fox Nightcrawler-Creek** zone (tungsten), **Crazy Fox** (molybdenum), **Jake** (gold) and **LJ** (zinc-lead-silver).

All of the operating mines in the region are listed in Table 4.1 and shown on the map (Figure 4.4). In addition, the major exploration projects are listed in Table 4.2.

**TABLE 4.1. SOUTH-CENTRAL REGION MINE PRODUCTION 2005**

Mine	Operator	Deposit Type / Commodity	Forecast Production in 2005 (tonnes or kilograms)	Number of Employees	Proven and Probable Reserves (on Jan. 1, 2005)
<b>Metals</b>					
Highland Valley Copper	Teck Cominco Ltd / Highmont Mining Company Ltd	Calc-alkalic porphyry Cu-Mo	172 000 t Cu, 3000 t Mo, 500 kg Au, 70 000 kg Ag	~900	166 500 000 t at 0.43% Cu (Note: prior to Sept. 2005 revision of mine plan)
<b>Coal</b>					
Basin	Compliance Energy Corp	Thermal coal	75 000	~20	
<b>Industrial Minerals</b>					
Ashcroft	IG Machine and Fiber Ltd (IKO Industries Ltd)	Basalt (roofing granules)		55 (plant & quarry)	
Bud	Western Industrial Clay Products Ltd	Bentonite		see Red Lake	
Buse Lake	Lafarge Canada Inc	Volcanic ash (alumina-silica)		see Harper Ranch	
Craigmont	Craigmont Mines Joint Venture	Magnetite tailings		~30 (plant; seasonal)	
Decor	Pacific Bentonite Ltd	Alumina, landscape rock		~4 (including trucking)	
Falkland	Lafarge Canada Inc	Gypsum		see Harper Ranch	
Harper Ranch	Lafarge Canada Inc	Limestone		32 (plant & 3 quarries)	
Kettle Valley quarries	Kettle Valley Stone Company	Ashlar, flagstone, thin veneer		~40 (plant & quarries)	
Pavilion	Graymont Western Canada Inc	Limestone		~34 (plant & quarry)	
Red Lake	Western Industrial Clay Products Ltd	Diatomaceous earth, leonardite		40 (plant & 3 quarries)	
Z-2	Industrial Minerals Processors	Zeolite		~3 (plant and quarry;	

**TABLE 4.2. MAJOR EXPLORATION PROJECTS, SOUTH-CENTRAL REGION, 2005**

Property	Operator	MINFILE (or NTS)	Commodities	Target Type	Work Program
Ajax (Abacus)	Abacus Mining and Exploration Corp / Teck Cominco Ltd	92INE012, 013	Cu, Au	Alkalic Porphyry	DD (~3000 m)
Basin (Tulameen) Coal	Compliance Energy Corp	092HSE 094, 157	Thermal Coal	Sedimentary	DD (~1320 m)
Bralorne (Cosmopolitan, Peter Vein; 51B Vein)	Bralorne Gold Mines Ltd	92JNE164, 001	Au, Ag	Mesothermal Vein	DD (~5000 m); UG (~1070 m); UG-BS (~3200 t); test milling (~21 000 t)
Broken Hill Congress	Timer Explorations Inc / Levon Resources Ltd	82M 279, 280, 281 92JNE029, 131, 132, 133	Zn, Pb, Ag Au, Ag, Cu, Sb	Stratiform Mesothermal Vein	DD DD (1061 m); TR; MS; GC
Craigmont	Christopher James Gold Corp	92ISE035	Cu	Skarn	GP, DD (~3000 m)
Dusty Mac	Ecstall Mining Corp	82ESW078	Au, Ag	Epithermal Vein	GP; DD (1400 m)
Elizabeth	J-Pacific Gold Inc	92O 012	Au, Ag, Cu, Mo	Mesothermal Vein	DD (~2800 m)
Elk (Siwash North)	Almaden Minerals Ltd	92HNE096	Au, Ag	Mesothermal Vein	DD (8395 m)
Extra High (Kamad 7)	Bronx Ventures Inc	82M 277	Au, Ag, Cu, Pb, Zn	Kuroko-type VMS	TR; DD (~1700 m)
Getty North	Getty Copper Inc	92INE038	Cu	Calc-alkalic porphyry	G, MS
Highmont East	Highland Valley Copper	92ISE013	Cu, Mo	Porphyry	DD; FS; ES; BK
Iron Lake	Argent Resources Ltd / Eastfield Resources Ltd	92P 132	Cu, Au, Pd, Pt	Alkalic Porphyry	GP; DD (505 m)
Isintok Lake	Jasper Mining Corp	82ENW093	Ag, Cu, Mo	Porphyry	AB-GP; DD
Ketchan	Copper Belt Resources Ltd	92HNE126, 037, 131, 115, 118, 163, 140 82M/10E	Cu, Au, Ag Zn, Pb, Ag	Alkalic Porphyry	DD (1210 m); G; GP
Kneb	Selkirk Metals Corp	82M/10E	Zn, Pb, Ag	Stratabound	G, DD (397 m)
Lac La Hache (Ann North, Spout, Peach etc)	GWR Resources Inc	92P 002, 115, 034	Cu, Au, Ag, magnetite	Alkalic Porphyry	AB-GP; DD (1788.4 m)
LJ	Selkirk Metals Corp	82M 264	Zn, Pb, Cu, Au, Ag	Besshi VMS	D (769.79 m)
Max (Kamad)	Amarc Resources Ltd	82M025	Au, Ag, Zn, Pb, Cu	Kuroko-type VMS	G; DD (3718 m)
New Afton	New Gold Inc	92INE023	Cu, Au, Pd, Ag	Alkalic Porphyry	UG; FS; DD (~20 000 m); AB GP
Newmac	Newmac Resources Inc	92N 030, 054, 055	Cu, Ag, Au	Porphyry, vein	DD (~1000 m)
Panorama Ridge	Goldcliff Resource Corp	82ESW052, 259	Au	Skarn	DD (~1200 m); TR

TABLE 4.2. CONTINUED

Property	Operator	MINFILE (or NTS)	Commodities	Target Type	Work Program
Prospect Valley (PV, NIC)	Cons. Spire Ventures Ltd / Almaden Minerals Ltd	none	Au, Ag	Epithermal Vein	GC; P; TR
Rabbit South and North	Global Hunter Corp	92INE071, 147, 130, 114	Mo, Cu, Au	Porphyry	DD (2390 m)
Rain (Sorcerer)	Orphan Boy Resources Inc	82M 156	Cu, Zn, Pb, Au, Ag, Mo, W	VMS; Skarn; Porphyry; Vein	DD
Rateria	Happy Creek Minerals Ltd	92ISE092, 150, 060	Cu, Mo	Calc-alkalic porphyry	DD (341 m)
Red Hill	Avalon Ventures Ltd	92INW042	Cu, Zn, Au, Ag	VMS	DD (1279 m); G; GP
Ruddock Creek	Selkirk Metals Corp / Doublestar Resources Ltd	82M 082, 83	Zn, Pb, Ag	Stratiform	D (3245 m); AB-EM; GP; GC
Skoonka (Sam)	Strongbow Exploration Inc / Almaden Minerals Ltd	92ISW104	Au, Ag	Epithermal Vein	DD (1257 m)
Tadpole	Goldrea Resource Corp / Molycor Gold Corp	82LSW009	Mo	Porphyry	DD (1146 m)
Upper Fir & Bone Cr.	Commerce Resources Corp	83D 035, 036	Ta, Nb, U, Phosphate	Carbonatite	DD
WCL	Western Canada Limestone Ltd	82LSW112	Limestone	Industrial Mineral	MS; FS
Whipsaw	Canfleur Mining Inc	92HSE102	Cu, Mo, Au, Ag	Porphyry	DD

A = access; trail, road construction on claims; AB-EM = airborne electromagnetics; AB-MG = airborne magnetics; AB-RD = airborne radiometrics; BU (X tonnes) = bulk sample (weight in tonnes if known); CD = condemnation drilling; CQ = coal quality testing; CT = carbonization test (coal); DD (Xm) = diamond drilling totaling X metres; EN = environmental baseline studies/monitoring, remediation work; FS = feasibility studies; G = geology, mapping, etc; GC = geochemical sampling (rock, soil, silt, etc); GD = geotech drilling; GP = geophysics (general); IP = Induced Polarization; 3D-IP; MG = magnetics; MK = marketing-primarily for industrial mineral products; MS = metallurgical studies; OB = overburden drilling; P = prospecting; PD = percussion drilling; PF = pre-feasibility studies; R = reclamation; RC = reverse circulation drilling; TR = trenching, UG (X m) = X metres of underground development; UG-BU = underground bulk sample; OP-BU = open-pit bulk sample; UT = UTEM; VLF; WT = washability test (coal)

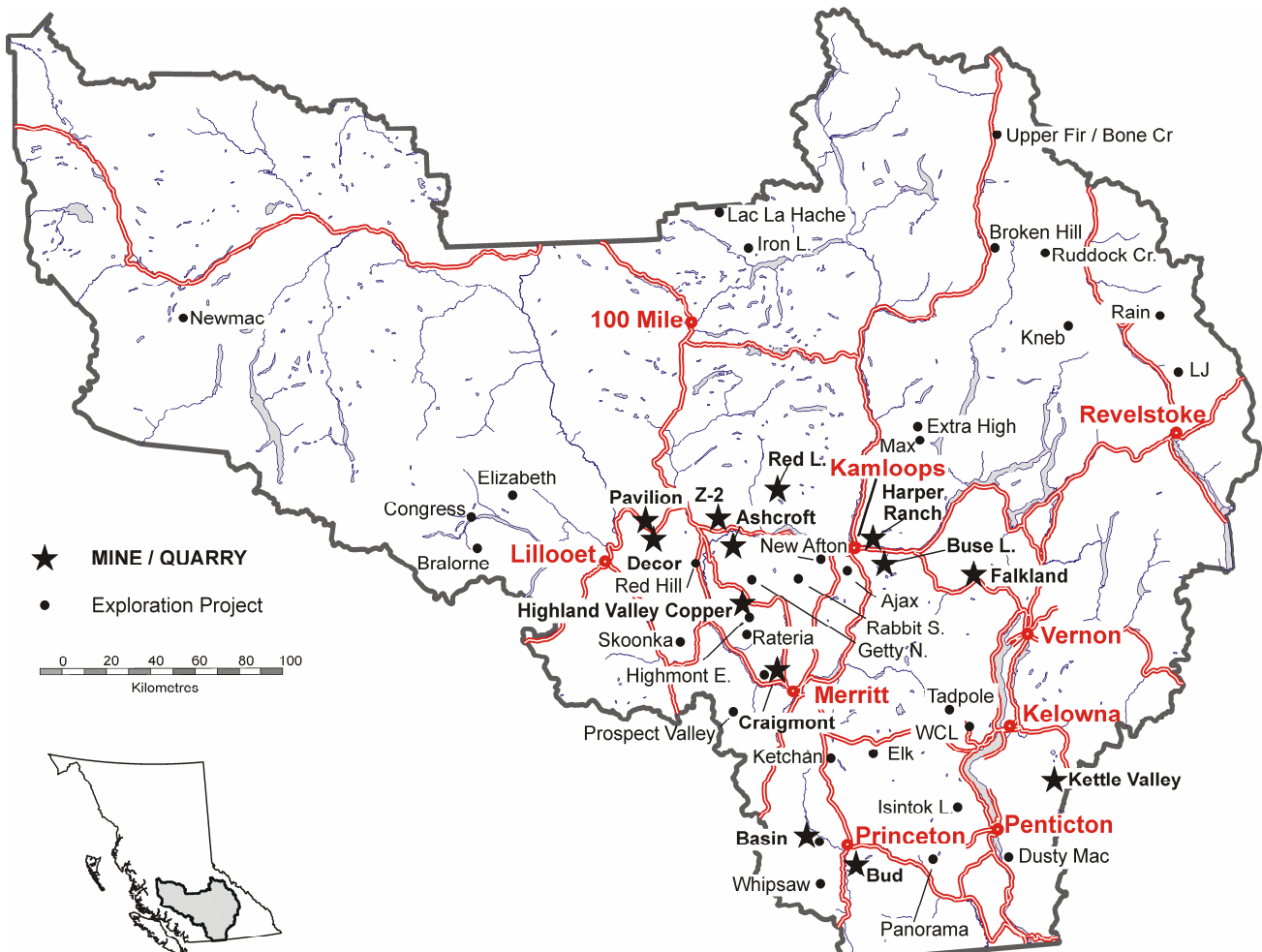


Figure 4.4. Mines, quarries and major exploration projects, South-Central region, 2005.

## MINES AND QUARRIES

### METALS

**Highland Valley Copper** (HVC; Figure 4.5), a partnership of Teck Cominco Ltd (97.5%) and Highmont Mining Company Ltd (2.5%), benefited from exceptional copper and molybdenum prices in 2005. Employing about 900 people, the operation is forecast to produce close to \$1 billion in revenue and \$600 million in operating profit for 2005. Average daily mill throughput has averaged about 136 000 tonnes per day (or 50 million tonnes per year) in recent years.



Figure 4.5. Stripping overburden at Valley pit, Highland Valley Copper.

In September, HVC announced an important decision to extend the mine life by five years to 2013. The extension plan involves relocation of two in-pit crushers, purchase of \$40 million of additional equipment, push-back of the Valley pit east wall and about \$150 million in stripping to be completed by 2009. Very late in the year, Teck Cominco announced it is also considering building a modern hydrometallurgical refinery on site.

Copper production at HVC in 2005 is forecast to be about 172 000 tonnes, slightly higher than 2004 due to marginally higher grades and throughput. Molybdenum production will be about 3000 tonnes which is in line with the 5-year average, but down by about 40% from 2004, which was an unusual and exceptional year. The mine also produces minor by-product gold and silver.

Most ore comes from the **Valley** pit, augmented by a small amount from the **Lornex** pit. Following a successful 300 000 tonne bulk sample test, the **Highmont East** pit, closed since the mid-1980s, was re-opened in fall 2005 to take advantage of higher molybdenum prices. In addition, exploration drilling was conducted nearby in the **Highmont South** area and results are being evaluated.

Several other mine-mill complexes remain on care-and-maintenance status. Many of these have been closed

since the mid-1990s, awaiting higher metal prices and/or discovery of additional ore. They have permits and substantial infrastructure in place and represent excellent opportunities for renewed mining or custom milling. Orphan Boy Resources Inc owns the **Goldstream** copper-zinc mine-mill complex north of Revelstoke. In 2005 the Goldstream permit was amended to allow custom milling at the 1360 tonne-per-day Goldstream mill. Only minor exploration was conducted at the nearby **Rain** property in 2005 (see below).

The dormant **Blackdome** gold-silver mine and mill of J-Pacific Gold Inc located northwest of Clinton also remains on care and maintenance. This underground mine operated in the 1980s and again briefly from October 1998 to May 1999. Mineralization consists of narrow, high-grade epithermal quartz veins. 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 gold and 33.7 g/t silver. In recent years, J-Pacific has focused its attention on the **Elizabeth** property located 32 kilometres to the south (see below).

The **Similco** (Copper Mountain-Ingerbelle) copper-gold mine at Princeton also remains on care and maintenance. When it shut down in 1996, the Similco mine was reported to have a resource of 142 million tonnes grading 0.397% copper (plus unreported gold) in the area of Pits 2 and 3 on the Copper Mountain side of the property. The property was sold in 2002 to Envirogreen Technologies Ltd, a company involved in the remediation of special wastes, which has set up a plant on a small portion the mine site.

### COAL

Located near the town of Coalmont, the small **Basin** thermal coal mine expanded production to about 75 000 tonnes in 2005. The high volatile, bituminous B and C rank coal is sold mainly to cement plants and small greenhouse growers in southern BC. Compliance Energy Corp consolidated ownership of the property and improved the efficiency of the operation by moving the wash plant to the mine site (Figure 4.6). It was formerly at the Similco mine site, which will continue to serve as a load-out for highway trucks. In addition, a fleet of mining equipment was purchased, and a barge load-out facility was set up on the Cheam Indian Reserve on the Fraser River. The company is currently studying the feasibility of establishing a 49-megawatt coal and wood-fired generating station on the Similco site.





Figure 4.6. Coal wash plant at Basin mine of Compliance Energy Corp.

## INDUSTRIAL MINERALS

There are more than fifteen industrial mineral quarries and processing plants employing over 250 people in the region. These operations provide stable jobs in many small to medium-sized communities including Kamloops, Kelowna, Lillooet, Cache Creek, Ashcroft, Princeton and Merritt. There are very good opportunities for additional growth in this sector due to the wide variety of rock types and deposits in the region, excellent transportation infrastructure, proximity to growing markets in western North America, and the relative ease of permitting.

A new limestone quarry received a permit for production in 2005. The **WCL** quarry of Western Canada Limestone Ltd is located in the Bear Creek area, west of Kelowna (Figure 4.7). The company is targeting agricultural, chemical and industrial markets.



Figure 4.7. WCL limestone quarry of Western Canada Limestone Ltd.

The **Kamloops** cement plant and **Harper Ranch** limestone quarry of Lafarge Canada Inc operated near capacity in 2005 due to strong demand in western Canada. The plant can produce about 220 000 tonnes of cement per year. Lafarge also draws materials from the **Falkland** and **Buse Lake** quarries, which provide gypsum and alumina-silica rock respectively. There are roughly 32

permanent staff and contractors working in the plant and quarries.

The **Decor** pit of Pacific Bentonite Ltd supplies alumina-rich burnt shale to the Lafarge cement plant in Kamloops. Production at this recently permitted quarry increased significantly to about 27 000 tonnes in 2005 (Figure 4.8). The shale beds occur directly above the Hat Creek coal deposit, located west of Cache Creek. Although most of the material is sold to Lafarge, a few thousand tonnes were also sold for surfacing of baseball diamonds. The property is also known to host a large bentonite deposit which is being investigated for municipal engineering and tile manufacture applications.



Figure 4.8. Decor alumina shale pit of Pacific Bentonite Ltd.

Also near Cache Creek, Graymont Western Canada Inc operates the **Pavilion** limestone quarry and lime plant on the Pavilion Indian Reserve. Employing about 34 people, mainly First Nations, the operation produces lime used in pulp mills, mines and other industrial processes. The plant has rated capacity of 180 000 tonnes of lime per year, but recently has been producing about 100 000 tonnes per annum. Graymont recently signed a forty-year lease extension and is studying the feasibility of a change in the mining system.

East of Ashcroft, IG Machine and Fiber Ltd, a subsidiary of IKO Industries Ltd, operates the **Ashcroft** basalt quarry and roofing granule plant. The plant employs about 55 people and produces about 250 000 tonnes of roofing granules per year. The granules are sized and coated with one of several distinct colours on site, and then shipped by rail and truck to IKO asphalt shingle plants in Calgary, Alberta; Sumas, Washington; Chicago, Illinois and elsewhere in North America (Figure 4.9).

To the east, the **McAbee** and **Walhachin** quarries supply basalt for railroad ballast for the Canadian National and Canadian Pacific railways, respectively. The railroads also have several other quarries in the region.



Figure 4.9. Truck arriving to pick up roofing granules at Ashcroft plant of IG Machine and Fiber Ltd.

Craigmont Mines Ltd operates the **Craigmont** magnetite tailings operation located near Merritt, which employs about 30 people. Tailings from the old Craigmont copper mine are processed to recover about 70 000 tonnes of magnetite annually. The plant normally operates on a seasonal basis (March to December), however, due to strong demand, processing is expected to continue through the 2005-2006 winter. The magnetite is used in coal washing plants in western Canada and the Centralia mine in Washington State. Remaining tailings are forecast to be exhausted in about four years, and the company is evaluating several other possible feed sources.

At its plant in Kamloops, Western Industrial Clay Products Ltd manufactures cat litter, barn deodorizer, industrial absorbents, and carriers for agricultural products. These are prepared from diatomaceous earth mined from the **Red Lake** quarry northwest of Kamloops, and bentonite mined from the **Bud** quarry at Princeton. About 40 to 45 people are employed at the company's various sites.

The **Z1** (Ranchlands) zeolite quarry near Cache Creek is a small intermittent producer. Ownership changed hands in mid-year when the Western Canadian Mineral Products Division of Dynatec Corporation was sold to Heemskirk Consolidated Ltd of Australia. The Division continues to market agricultural and absorbent products, produced from stockpiled zeolite at its plant in Lethbridge, Alberta.

Zeolite was mined from the nearby **Z2** quarry for processing at a plant in Ashcroft. The quarry and plant 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. The company mined and crushed 10 000 tonnes in 2005. Zeo-Tech is part owner of United Zeolite Products Ltd which built a zeolite micronizing plant in 2004. United has a five-year, five million-dollar contract with Hallibuton Energy Services

Inc to supply zeolite used to produce lightweight cement for oil and gas wells. Also in 2005, Zeo-Tech acquired the nearby **Sun** zeolite property.

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 marketed from a retail store in Vernon and is aimed at the BC tourist 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, Kettle Valley, Canyon** and **Gemini** quarries. Kettle Valley's workforce has grown to about 40 people year round, mainly employed in the Kelowna processing facility. The products include dacite ash, gneiss and basalt, and are mainly used in high-end residential and commercial developments in the western U.S.A. and in the Vancouver-Whistler area.

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

## EXPLORATION HIGHLIGHTS

### *Kamloops-Highland Valley*

Strong prices for copper, molybdenum and gold have focused exploration interest on the productive porphyry districts of southern BC, particularly the Guichon and Iron Mask batholiths.

The largest exploration project in the region, and the second largest in the Province, was the **New Afton** copper-gold porphyry project of New Gold Inc (formerly DRC Resources Corp). The project is located at the closed Afton open pit mine site, beside the Trans Canada Highway, ten kilometres west of Kamloops (Figure 4.10). More than 50 people worked on the site for most of the year, and about \$18 million will be spent. A total of 2204 metres of underground drifts and crosscuts were excavated to allow for more than 25 000 metres of underground infill drilling along with engineering and metallurgical studies.





Figure 4.10. View showing the pit, portal and surface facilities at the New Afton copper-gold project of New Gold Inc.

A feasibility study begun in late 2005 is expected to be completed by the fourth quarter of 2006. The study, headed by Hatch Ltd, will update the resource estimate and evaluate bulk underground mining methods, tailings deposition, plant design, infrastructure, scheduling and economic analysis of the project. Overall measured and indicated resources, estimated in 2004, total 68 700 000 tonnes grading 1.68% copper equivalent (1.08% copper, 0.85 g/t gold, 2.62 g/t silver and 0.12 g/t palladium), using a cutoff of 0.7% copper equivalent. An additional 7.45 million tonnes is inferred to exist at a slightly lower grade.

Permitting for a new mine is expected to begin in mid-2006 and run concurrently with the feasibility study. The company also plans a substantial 2006 program of underground and surface diamond drilling to explore for new deposits in the area. This will include drilling on the company's claims between the **Ajax** East and West pits, which provided mill-feed to the Afton concentrator prior to closure in 1997. The pits are located about 10 kilometres southeast of the Afton site.

Abacus Mining and Exploration Corp also holds mineral properties in the Afton-Ajax area. In late November, Abacus completed a deal to purchase milling and processing facilities, a tailings storage facility, surface and subsurface rights, permits and infrastructure from Afton Operating Corp, a subsidiary of Teck Cominco Ltd. At the same time, Abacus began drilling in at the past-producing **Ajax** pits. An angle-hole beneath the Ajax West pit intersected 408 metres grading 0.52% copper and 0.31 g/t gold beginning at a depth of 136 metres. This drill program is expected to continue into 2006 and extend to other targets on Abacus' large property.

Earlier in the year, Abacus released resource estimates for two other deposits in the district, based on extensive drilling programs completed in 2004. The **Rainbow** and **DM/Audra** deposits are located between Afton and Ajax and have substantial indicated and

inferred resources of low-grade copper-gold mineralization, and good potential for expansion.

The small **Kamloops Gold** property of Williams Creek Exploration Ltd was also explored by drilling during the year. The property is located a few kilometres east of the Afton pit.

In the Highland Valley, Getty Copper Inc conducted metallurgical studies on the **Getty North** porphyry copper deposit located north of Highland Valley Copper. Previous work at Getty North defined a drill indicated and inferred resource of 72.1 million tonnes grading 0.31% copper, including 10.0 million tonnes of oxide grading 0.40%. The company is evaluating the potential for continuous vat leaching of the Getty North oxide mineralization.

The **Rateria** property is located south of the Highmont pits of Highland Valley Copper. A 3D inversion induced polarization survey was completed and two short drillholes were drilled by private company Happy Creek Minerals Ltd. A promising chargeability anomaly was identified beneath previously drilled short holes, of which at least one ended in copper mineralization.

The **Rabbit South** property, located southwest of Kamloops and midway between the Afton and Highland Valley Copper mines, was drilled by Global Hunter Corp. The property hosts calc-alkalic porphyry molybdenum mineralization in the Roper Lake stock. This deposit was explored previously by Cominco Ltd which drilled 79 percussion and 25 diamond-drill holes. The diamond-drill holes are reported to have averaged 0.065% molybdenum over an average thickness of 80.5 metres. The 2005 drilling confirmed the previous drill results.

### ***Southern Cariboo-Chilcotin***

Exploration for porphyry copper-gold deposits was the focus of most work in the Cariboo-Chilcotin in 2005. The most significant deposit in this area is the **Prosperity** porphyry gold-copper deposit of Taseko Mines Ltd, located southwest of Williams Lake. The most recent information from the company gives an estimated measured and indicated resource of 491 million tonnes grading 0.43 g/t Au and 0.22% copper. Taseko applied and was granted an extension of the Environmental Assessment Act period to April 30, 2007. The company continues to communicate and consult with area First Nations, and is reviewing and optimizing previous project economic studies.

Near Bluff Lake, further west in the Chilcotin, Newmac Resources Inc drilled the **Newmac** porphyry copper-silver-gold prospect.

The **Lac La Hache** property of GWR Resources Inc was covered by an airborne magnetic-radiometric survey during the year. In addition, a small drilling program tested the Spout Lake magnetite-chalcopryite skarn

deposits. Further east, the **Iron Lake** property was drilled by Argent Resources Ltd. This grassroots property has a large soil anomaly, and float sampling has returned encouraging values in copper, gold and platinum group metals in an area underlain by pyroxenite.

At the **Fox** property near Canim Lake in the Southern Cariboo, Happy Creek Minerals Ltd reported encouraging surface sampling results from the new **Nightcrawler-Creek** tungsten skarn zone (Figure 4.11). Values of up to 4.25% tungsten have been reported from grab samples. Skarn prospects occur over several kilometres of strike length adjacent to the Deception stock of probable mid-Cretaceous age. Molybdenum, zinc and gold values are known from previous soil and rock sampling.



Figure 4.11. Prospector Dave Ridley (centre) and Ministry staff examine tungsten skarn outcrops in the Nightcrawler-Creek zone on the Fox property of Happy Creek Minerals.

Newmac Resources Inc reported discovery of new molybdenum mineralization on the **Crazy Fox** property north of Little Fort. Trenching and soil sampling indicate the zone could be at least 500 by 200 metres in size. The mineralization appears to be an extension of the nearby Anticlimax molybdenum porphyry prospect.

### **Gold Bridge**

The famous Gold Bridge mesothermal gold-quartz vein camp, BC's most prolific gold district, was quite active in 2005. The most advanced project is the **Bralorne mine** of Bralorne Gold Mines Ltd which operated from 1900 to 1971. A Mine Development Certificate was issued for a new mine in 1995; however, low prices since then have delayed development. Resource calculations reported at that time gave 406 584 tonnes at a grade of 10.6 g/t gold above the 800 level in the Bralorne mine, and 26 115 tonnes grading 9.6 g/t gold for the Upper Peter vein on the Loco property.

In 2005, Bralorne conducted underground development and diamond drilling in the **Upper Peter** and **51B** areas. Over 1000 metres of underground development was completed in these two areas. In

addition, test milling of about 21 000 tonnes of low-grade stockpiles and old tailings dumps, produced 10 dore bars and 222 bags of flotation concentrate. The actual gold production has not been reported yet. Most of the concentrate was sold to Barrick Goldstrike Mine in Nevada for further processing. In addition to the underground workings, infrastructure on the property includes an assay lab, mine offices and dry, a partially completed tailings pond and a small gravity/flotation pilot mill with a capacity of about 100 tonne-per-day.

The **Congress** gold property is located north of Bralorne on the north side of Carpenter Lake. The property had some mining and substantial exploration between 1913 and 1989, including six adits with over 2300 metres of underground workings. An aggregate resource of several hundred thousand tonnes of refractory gold mineralization has been defined in the **Howard, Lou** and **Congress** vein zones. Surface exploration in 2005 included excavator trenching and diamond drilling. The trenching is reported to have discovered the **Golden Ledge** zone, thought to be the northern extension of the Lou zone, as well as an extension of the Congress zone. Drilling helped define grade and structure in the Howard zone.

The **Elizabeth** property in the Shulaps Range, northeast of Goldbridge, was the subject of a large drilling program. The property hosts narrow, mesothermal quartz veins with local, very high gold grades. The drilling was successful in extending the **Southwest** vein zone to the north. In addition, several narrow zones (generally less than one metre wide) of high copper (to 0.64%) and molybdenum (to 0.598%) were encountered.

### **Okanagan**

Porphyry molybdenum deposits and gold-quartz vein deposits were the main exploration targets in the Okanagan in 2005. The new **WCL** limestone quarry was permitted for production (see above).

The **Elk** (Siwash North) mesothermal gold-quartz vein project of Almaden Minerals Ltd is the largest and most advanced project in the area with over 8300 metres of drilling in 2005. This large drilling campaign was aimed at expanding the known resource on the property. Almaden owns a 110 tonne-per-day, modular, gravity-flotation mill which is stored at a site near the property.

Elk is located 45 kilometres southeast of Merritt, and just 2 kilometres south of Highway 97. Previous high-grade mining produced 1609.6 kilograms gold (51 750 ounces) from 16 700 tonnes of direct-shipping ore from open-pit and underground operations between 1992 and 1995. Grades averaged about 96 g/t gold.

A May 2004 resource estimate will be updated during winter 2006. The 2004 estimate was completed prior to nearly 20 000 metres of drilling in 2004 and 2005, and using drill data for the **Siwash B** and **WD** veins, just two



of eight known mesothermal vein structures on the property. Global (bulk-tonnage and underground mineable) measured and indicated resources were reported to total 668 300 tonnes grading 9.66 g/t gold (207 600 ounces) plus an additional 1 317 200 tonnes grading 4.91 g/t gold (207 800 ounces) in the inferred category. Included in the global figures is a higher grade, underground-mineable resource totaling 164 000 tonnes grading 33.69 g/t gold in the measured and indicated category, plus another 195 200 tonnes grading 16.38 g/t gold in the inferred category.

Searching for additional epithermal gold-silver mineralization, Ecstall Mining Corp conducted drilling in the area of the **Dusty Mac** mine near Okanagan Falls. The mine produced 93 372 tonnes of quartz breccia ore from a small open pit in 1975 and 1976, at a recovered grade of 6.49 g/t gold and 113 g/t silver. The nearby **Vault** property has a small resource of similar epithermal mineralization; however, only limited sampling was completed in 2005.

The **Tadpole Lake** molybdenum porphyry prospect, located north of the Brenda mine and west of Kelowna, was drilled by partners Molycor Gold Corp and Goldrea Resources Corp. The property was explored by percussion drilling by Cominco Ltd in the past. The companies also drilled a large number of very short holes into the **Crow-Rea** molybdenum vein/porphyry prospect south of Brenda.

The **Isintok** molybdenum-copper-silver prospect, located southwest of Summerland, was explored by Jasper Mining Corp. An airborne geophysical survey was completed and drilling was slated for late fall. Drilling by Anaconda Canada Exploration Ltd in 1981 identified a shallow, low-grade porphyry molybdenum-copper resource. Jasper also acquired the neighboring **Alaric** copper prospect.

### **Fraser River-Merritt-Ashcroft**

The past producing **Craigmont** copper mine, located outside Merritt, was the subject of a large exploration project by Christopher James Gold Corp. Developed on a series of copper skarn deposits, the mine operated from 1962 to 1982. About 34.85 million tonnes of ore were milled with an average recovered grade of about 1.15% copper and very minor silver and gold values. In 2005, Christopher James Gold compiled previous results, conducted geophysical surveys and drilled several holes in the **Embayment** area west of the mine. The drilling targeted previously known skarn mineralization and anomalies identified in the new surveys. Drilling from the existing underground workings is contemplated for 2006.

Almaden Minerals Ltd and partner companies explored several new low-sulphidation epithermal gold-silver targets in the newly emerging **Spences Bridge gold belt**, located between Merritt, Spences Bridge and Lytton. The area has excellent access due to the extensive logging

road network. Gold-bearing quartz veins and associated clay alteration zones are hosted in volcanics of the Spences Bridge Group. Exploration in this belt began in 2001 when Almaden prospector Ed Balon began following up Regional Geochemical Survey anomalies. Mineralization has now been identified on four separate properties (**Skoonka Creek, Prospect Valley, Merit and Nicoamen River**) and regional prospecting is continuing. Three additional properties were acquired by Almaden in late 2005, and the company now controls about 426 square kilometres of tenure in the belt.

The **Skoonka Creek** project (formerly Sam) was explored by drilling in late 2005 with very encouraging results. The property is located southwest of Spences Bridge and accessed by roads from Lytton. Four separate mineralized showings were discovered by Almaden in late 2004, and the property was optioned to Strongbow Exploration Inc early in 2005. Strongbow conducted surface surveys and drilled eleven holes, seven at the **JJ** vein showing (Figure 4.12) and four at nearby targets. Results were very good, highlighted by an intersection of 18.4 g/t gold over 12.8 metres in hole SC-008, including a high-grade section of 2.91 metres grading 49.5 g/t gold. The drilling has so-far traced the mineralization over a strike-length of 350 metres at this showing, and several other targets require detailed follow-up. Mineralization consists of delicately banded, low-sulphidation epithermal quartz veins surrounded by clay alteration zones (Figure 4.13).



Figure 4.12. Geologists examine the JJ gold-silver showing on the Skoonka property of Strongbow/Almaden.

The **Prospect Valley** property, located west of Merritt, was optioned by Almaden to Consolidated Spire Ventures Ltd. Reconnaissance prospecting has identified several float and bedrock occurrences including the **PV** area where previous prospecting discovered float grading up to 43.3 g/t gold. At the **NIC** vein zone, 2005 exploration identified an area about three kilometres long with anomalous gold-in-soils and scattered veins in hand trenches.



Figure 4.13. Banded epithermal quartz, Hole SC-007, Skoonka Creek property (section runs 47.8 g/t gold over 1.57 metres).

The **Merit** property, wholly owned by Almaden, adjoins the Prospect Valley to the east. Alteration and veining has been discovered over several kilometres and a large soil geochemical and prospecting program was completed in 2005. Channel sampling of veins and alteration in a hand trench on **Sullivan Ridge** returned 7.2 g/t gold over 1.8 metres.

South of Spences Bridge, Almaden worked on the **Nicoamen River** property. Soil sampling and prospecting was directed at locating the source of float boulders assaying up to 55.5 g/t gold.

Further northwest in the Spence Bridge gold belt, epithermal gold-silver mineralization is also the target on the **Blustry Mountain** (Rand) project of Wyn Developments Ltd. The property is located east of Lillooet and northwest of Lytton. An induced polarization survey was completed in 2005, covering an area of alteration with a coincident polymetallic soil anomaly.

Limited geophysical and geological work was completed on the **Duke** (Copper Canyon) porphyry copper-gold-silver prospect located southwest of Merritt, but drilling is contemplated for late 2005 or early 2006. The property is optioned by Freegold Ventures Ltd from Silver Quest Resources Ltd. Drilling in 1963 returned encouraging copper values (e.g. 0.63% copper over 57.9 metres); however, gold was not included in the assay work at that time and little work has taken place since. Recent surface grab sampling has shown gold values in the range of 0.21 to 0.48 g/t gold.

The **Red Hill** massive sulphide copper-zinc-silver property near Ashcroft was active again in 2005. The property was optioned by Avalon Ventures Ltd from Teck Cominco Ltd. Avalon did geological mapping and developed a new structural model that was tested by six drillholes in two areas. The holes are reported to have intersected broad intervals of hydrothermally altered felsic volcanic rocks. One hole hit two narrow bands of massive sulphide mineralization. Down-hole pulse electromagnetic surveys were also completed.

## **Revelstoke-Shuswap-North Thompson**

This area is best known for its stratiform base-metal deposits in rocks of the Kootenay Terrane. Several promising projects received significant exploration work in 2005.

Selkirk Metals Corp, a new company formed to hold the base-metal assets of Cross Lake Minerals Ltd, was active on several properties north of Revelstoke. Two significant discoveries were reported from the **Ruddock Creek** property, optioned from Doublestar Resources Ltd. Previous work by Falconbridge Ltd and Cominco Ltd, defined an inferred mineral resource of 1.5 million tonnes grading 8.4% zinc and 1.6% lead within the **E-zone**. Deep holes west of the “E-fault” intersected high-grade mineralization interpreted to be the faulted offset of the E-zone. The best hole, RD-05-113, intersected 14.05 metres grading 15.79% zinc, 3.33% lead and 5.2 g/t silver beginning at a depth of 708.5 metres. Selkirk believes the results show the E-zone could extend for at least 380 metres west of the E-fault, opening up a large area for expansion of the resource. In addition, the company conducted surface geochemical and geophysical surveys in the **Oliver Creek** area, about 5 kilometres west of the E-zone. An 800-metre long soil anomaly has been identified. High-grade float boulders have been discovered along this trend, and a chip-sample returned 18.62% zinc and 4.55% lead over 1.5 metres.

Similar mineralization was drill-tested on the **Broken Hill** property by Timer Explorations Inc. This property is located northeast of Avola, and west of Ruddock Creek.

Selkirk Metals also reported the discovery of high-grade massive sulphide mineralization at the **LJ** property, located 35 kilometres north of Revelstoke. The drilling targeted the source of high-grade float boulders at the toe of a receding glacier. Hole LJ005-02 intersected 10.7% zinc, 4.9% lead and 9.4 g/t silver over 5.0 metres. Selkirk also conducted work on the **Ghost** and **Kneb** base-metal properties in 2005.

Only limited work was completed on the large group of properties held by Orphan Boy Resources Inc in the **Goldstream mine** area, north of Revelstoke. Drilling was conducted by Orphan Boy on the **Alfie** polymetallic vein targets on the **Rain** property.

A large program of drilling and metallurgical studies was expected to be completed on the **McKinnon Creek (J & L)** polymetallic deposit; however, financial problems with BacTech Mining Corp caused the cessation of work early in the year. Located 45 kilometres north of Revelstoke, the J & L Main zone comprises an arsenopyrite-bearing massive sulphide body with a reported potential resource of 3.6 million tonnes grading 7.24 g/t gold, 81 g/t silver, 3.0% lead and 3.83% zinc.

Two significant projects were active in the Paleozoic Eagle Bay Assemblage near the Samatosum mine east of Barriere. Amarc Resources Ltd drilled the **Max** property, also known as the Homestake or Kamad Silver mine. The

drillholes were successful in locating the downdip extension of previously known silver-rich, baritic Kuroko-type VMS horizons. However, the mineralization was found to be cut-off by a fault in Homestake Creek and the project was terminated. Intersections such as 9.0 metres grading 1.71 g/t gold, 252 g/t silver and minor copper, lead and zinc were encountered. Two rounds of drilling were also completed on the nearby **Extra High** (Kamad 7) massive sulphide deposit by Bronx Ventures. The property adjoins the past-producing Samatosum mine property, and the deposit is along strike from the Rea Gold (Discovery) massive sulphide deposit. The drilling confirmed and expanded the known extent of high-grade, arsenical massive sulphide mineralization. The best intersection was in hole 05-06 which cut 9.69 metres grading 7.82 g/t gold, 67.8 g/t silver, 0.64% copper, 4.3% lead, 5.16% zinc and 0.97% arsenic.

A new gold discovery, **Jake**, was made west of Clearwater by geologist Mo Kaufman. The original property was optioned to Rimfire Minerals Corp which acquired a large property surrounding the discovery. Rimfire sampling confirmed high gold values, with up to 38.8 g/t returned from float boulders. Mineralization consists of quartz with pyrrhotite, chalcopyrite, pyrite and bismuthinite and is hosted in basalt of the Fennell Formation.

Finally, near Blue River in the North Thompson valley, Commerce Resources Corp completed drilling on the **Upper Fir** and **Bone Creek** prospects. Targeting carbonatite-hosted tantalum-niobium mineralization, the drilling was successful in intersecting carbonatite layers up to 16.79 metres in thickness. Assays are awaited. Commerce also owns the nearby **Fir** deposit, which has an indicated resource of 5.65 million tonnes grading 203 g/t Ta<sub>2</sub>O<sub>5</sub> and 1074 g/t Nb<sub>2</sub>O<sub>5</sub> and the **Verity** deposit, located 10 kilometres north, with a resource of 3.06 million tonnes grading 196 g/t Ta<sub>2</sub>O<sub>5</sub>, 646 g/t Nb<sub>2</sub>O<sub>5</sub> and 3.2% P<sub>2</sub>O<sub>5</sub>.

### ***Aspen Grove-Princeton-Keremeos***

This part of the region was moderately active in 2005. Industry interest was mainly focused on porphyry copper-gold-molybdenum prospects. Copper Belt Resources Ltd drilled over 1200 metres on the **Ketchan** copper-gold porphyry prospect near Aspen Grove. The holes were successful in confirming the presence of alkalic porphyry copper-gold mineralization. Assays are awaited. The **Whipsaw** porphyry prospect near Princeton was explored by private company Canfleur Mining Inc. The property hosts broad zones of low-grade porphyry-style copper-molybdenum mineralization.

Near Hedley, the **Panorama Ridge** gold skarn project of Goldcliff Resources Corp was active again in 2005. Located a few kilometres east of the historic Nickel Plate gold mine, the property has numerous targets with wide zones of low-grade gold values. Extensive trenching

and drilling were completed in 2005, focusing on the York-Viking and Nordic zones. The latter returned several higher-grade channel samples.

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