

## SOUTH CENTRAL REGION

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### HIGHLIGHTS

- \* Exciting grassroots prospects were explored by drilling or trenching programs at **Silver Lake (Worldstock and New Discovery), Melba, Panorama Ridge, Spire, Broken Hill, Fox, and Clearwater Platinum.**
- \* The **Ashcroft** quarry and roofing granule plant (Photo 1) of I.G. Machine and Fiber began operation.
- \* A bulk sample was mined at the **Tulameen** coal project, which may become the region's next operating mine.
- \* Exploration indicators were at their **highest levels in four years.** Exploration spending in 2001 totaled \$5.0 million, while there were 32 000 metres of drilling and 15 major projects. Nevertheless, there is room for improvement as exploration is still well below 1988-1997 activity levels.

### EXPLORATION TRENDS

Exploration activity in the South-Central region was at a four-year high, with indicators at double their levels of the 1998 lows. Exploration and development spending (Figure 1), metres of drilling (Figure 2), and number of major projects (Figure 3) were all up for the third year in a row. Exploration spending for 2001 is estimated at \$5.0 million while drilling activity increased to about 32 000 metres. Some 5832 claim units were staked in the region by year-end, on par with the previous four years (Figure 4).

There were 15 major exploration projects in 2001 (Figure 5; Table 1). As was the case last year, the **Afton** project accounted for nearly half the metres drilled and about one-third of all spending. Other moderate-sized drilling projects were carried out on the **Red Hill, Silver Lake (Worldstock and New Discovery), Blue River (Verity and Fir), Fox, and Broken Hill** properties.



Photo 1. The newly built Ashcroft roofing granule plant of I.G. Machine and Fiber Ltd., a subsidiary of IKO Industries Ltd.

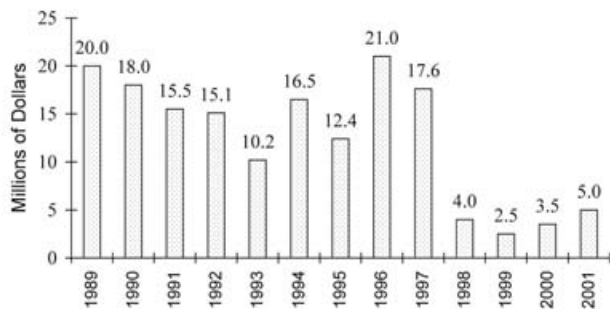


Figure 1. Annual exploration spending, in millions of dollars, South-Central Region

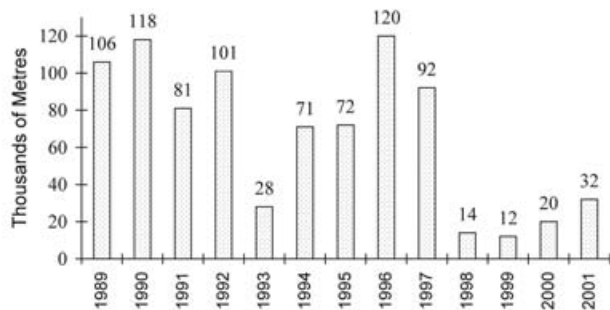


Figure 2. Annual exploration and development drilling, in thousands of metres, South-Central Region.

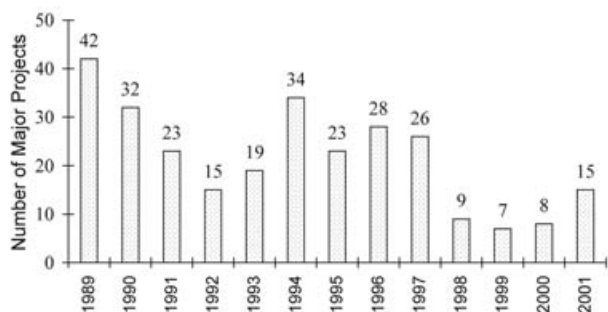


Figure 3. Number of major exploration projects per year, South Central Region. Major projects are defined as those with mechanical disturbance (e.g. trenching or drilling) and expenditures exceeding \$100 000.

Activity was mainly focused on alkalic copper-gold porphyry, volcanogenic massive sulphide zinc-copper-lead-gold-silver, and gold-silver vein occurrences. In addition, there were several grassroots projects that targeted platinum group metals, specifically on the **Clearwater**, **Tulameen**, and **Allendale Lake** properties.

Junior companies were responsible for perhaps 80 per cent of spending, while major companies (Teck Cominco Ltd., Highland Valley Copper, Imperial Metals Corp.) conducted a few programs.

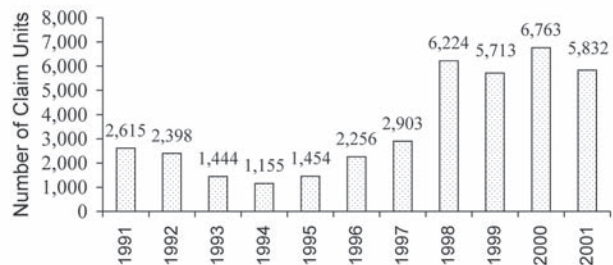


Figure 4. Claim units staked, South-Central Region

## MINES

The region's operating and dormant mines are shown on Figure 5.

Production at **Highland Valley Copper** (HVC), a partnership of Teck Cominco Ltd., BHP Billiton Ltd. and Highmont Mining Company was about 5 per cent lower than last year's record metal output. Mining low-grade porphyry copper-molybdenum-gold-silver ore, the open-pit operation employs about 950 people (Photo 2). Metal production for 2001 totaled 180 530 tonnes Cu, 1850 tonnes Mo, 449.09 kilograms (14 439 ounces) Au and 97 539 kilograms (2 136 000 ounces) Ag (Frank Amon, Electronic Communication, February 7, 2002).

Although copper prices were very soft during the year, HVC has remained marginally profitable due to a reduction in operating costs and the drop in the value of the Canadian dollar. With very low strip ratios and a fourth quarter reduction in wages and hydro rates, as stipulated in a Job Protection Agreement, the break-even price for HVC has been lowered to below US\$0.60 per pound of copper. On January 1, 2002 the wage cut was increased from three to six per cent.

Groundwater inflow to the Valley pit is increasing and an aquifer-dewatering plan is being prepared to control the problem. In early 2002 the company plans to submit this plan to the BC Environmental Assessment Office for review and approval.

Proven and probable reserves on January 1, 2002 totaled 345.1 million tonnes grading 0.414% Cu and 0.0081% Mo. Mine closure is forecast for March 2009 based on remaining reserves, although the feasibility of a three-year extension is still being studied despite the prevailing low copper prices. That would involve a pushback of the Valley pit and relocation of the conveyor system and crushers to access ore in the southeast part of the pit. According to newspaper reports, a decision to proceed with the pushback would have to be made within a year for the plan to be viable.

In terms of exploration, HVC completed three drill holes to test IP anomalies in the Pimainus Lakes area, ap-

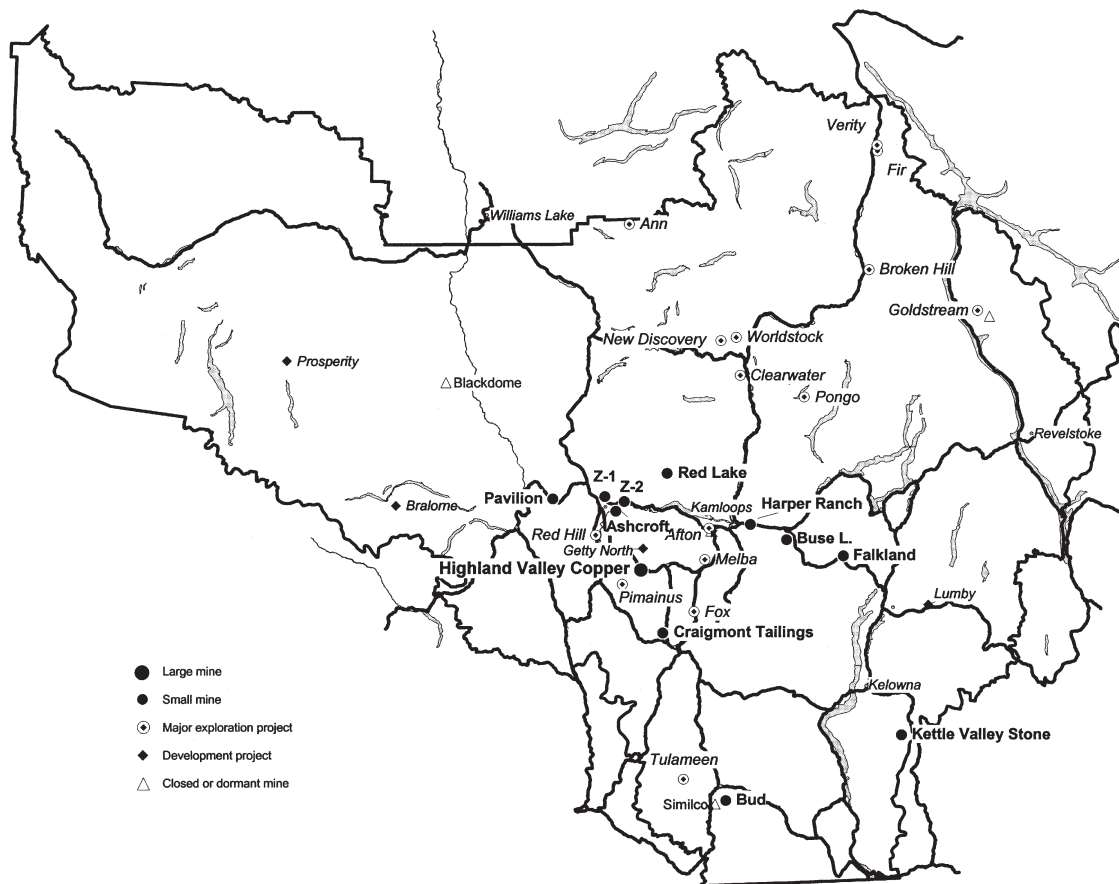


Figure 5. Mines, development projects and major exploration projects, South-Central Region, 2001.

proximately 8 kilometres southwest of the mine. No results were released.

In October, the newly built **Ashcroft** Quarry and Roofing Granule Plant (Photo 1) of IG Machine and Fiber Ltd. began production of roofing granules for shipment to IKO Industries' shingle plants in Sumas, Washington and Calgary. The quarry is permitted to produce up to 250 000 tonnes per year of which about 60% will become finished roofing granules. At full production, the operation could employ 60 people.

The Kamloops cement plant and **Harper Ranch** limestone quarry of Lafarge Canada Inc., with an annual capacity of about 240 000 tonnes of cement, operated at about 60 per cent capacity on an intermittent basis during the year (Jeff Colbourne, Personal Communication, December, 2001). Lafarge also draws materials from the Falkland and Buse Lake quarries which produce gypsum and alumina-silica rock respectively.

At **Pavilion** near Lillooet, Graymont Western Canada Inc. (formerly Continental Lime Ltd.) operates a limestone quarry and lime kiln. The operation produces about 200 000 tonnes of lime per year, mainly for use in pulp mills. Near Merritt, M Seven Industries Ltd. produces magnetite on an intermittent basis by reprocessing tailings from the old



Photo 2. The Highland Valley Copper operation. Photo courtesy of Teck Cominco Ltd.



**TABLE 1**  
**MAJOR EXPLORATION PROJECTS,**  
**SOUTH-CENTRAL REGION, 2001**

Property	Operator	MINFILE	Mining Division	NTS	Commodities	Target Type	Work done
Afton	DRC Resources Corp.	92INE 023	Kamloops	92I/10E	Cu, Au, Pd, Ag	Alkalic Porphyry	28 ddh, 14,480 m
Ann	GWR Resources Inc.	92P 115	Clinton	92P/14W	Cu, Au	Alkalic Porphyry	7 ddh, 847 m; trail; geochem
Broken Hill	Cassidy Gold Corp.	82M 279, 280	Kamloops	82M/14W	Zn, Pb, Ag	Sedex	13 ddh, 930 m; geol; prosp
Fir	Commerce Resources Corp.	83D 035	Kamloops	83D/06E	Ta, Nb, Phosphate	Carbonatite	6 ddh, 1246.54 m; 1 km road; 8.56 km ground mag; geochem; prosp; grid
Fox	Gitennes Exploration Inc.	92ISE 191	Nicola	92I/07E	Zn, Cu, Pb, Au, Ag	VMS	8 ddh, approx 1000 m
Clearwater	Cusac Gold Mines Ltd.	92P 043	Kamloops	92P/08E	Pt, Pd, Au, Ni, Co, Cr	Magmatic	6 ddh, approx. 950 m; 780 m trail
Goldstream	Orphan Boy Resources Inc.	82M 141	Revelstoke	82M/09W	Cu, Zn, Au, Ag	VMS	3 ddh, approx. 600 m; grid; geophys; geochem; geol
Melba	Wallopier Gold Resources Corp.	none	Kamloops	92I/07E, 8W, 9W	Au, Ag, Cu, Pb, Zn	Vein	11 ddh, 484.58 m; trenching; grid; geol; geophys; geochem
Pimainus	Highland Valley Copper	none	Kamloops	92I/06E	Cu, Mo, Au, Ag	Porphyry	3 ddh, 877.1 m; 1.8 km trail
Pongo	Verdstone Gold Corp. / Molycor Gold Corp	82M 058	Kamloops	82M/04W	Au, Ag, Zn, Pb, Cu	Vein/Shear	8 ddh, approx 442 m; trenching; geol; geochem
Red Hill	Teck Corp.	92INW 057, 042	Kamloops	92I/11W	Cu, Zn, Au, Ag	VMS	17 ddh, 3643 m; 1.7 km trail
Silver Lake - Discovery A & B zones	Christopher James Gold Corp.	none	Kamloops	92P/09W	Cu, Ag, Au	Vein	14 ddh, 1486 m; trenching; 1 km trail; geol; geophys; geochem
Silver Lake - Worldstock	Christopher James Gold Corp.	92P 145	Kamloops	92P/09W	Cu, Mo, Au	Porphyry / stockwork / shear?	7 ddh, 879 m; 5 trenches; 800 m trail; geophys
Tulameen Coal	Compliance Coal Corp. / Pacific West Coal Ltd.	092HSE 094, 157	Similkameen	92H/10E, 10W, 7E, 7W	Thermal Coal	Sedimentary	Mined 10,000 t bulk sample; 1000 t shipped; feasibility study
Verity	Commerce Resources Corp.	83D 005	Kamloops	83D/06E	Ta, Nb, Phosphate	Carbonatite	5 ddh, 403.89 m; 4.8 km roads; 34.24 km ground mag; radiometrics; geochem; prosp; grid

**Craigmont** copper mine (Photo 3). The magnetite is used in coal washing plants throughout western Canada.

Western Industrial Clay Products Ltd. operates the **Red Lake** quarry that supplies diatomaceous earth (fuller's earth) for its plant in Kamloops. The main products are kitty litter, barn deodorizer and industrial absorbents. During 2001, the company also began sales of the "Garden Treasure" line of organic potting soils using Red Lake "leonardite" and diatomaceous earth, combined with peat and perlite from other sources. Leonardite is a carbonaceous material similar to low-grade lignite. Bentonite from the **Bud** quarry at Princeton is used in Western Industrial Clay's clumping cat litters.

The Mountain Minerals Division of Highwood Resources Ltd. owns the **Z1** (Ranchlands) zeolite quarry near Cache Creek. Intermittent production from the quarry supplies the agri-food and industrial absorbents markets. No

mining took place during 2001; the company drew from stockpiles.

The nearby **Z2** quarry and Ashcroft processing plant (Photo 4) were sold to Industrial Mineral Processors of Calgary. Formerly owned by C<sub>2</sub>C Zeolite Corp., the plant produces deodorizers, feed binders, cat litter and industrial absorbents.

The Kettle Valley Stone Company of Kelowna continued to expand production of its attractive flagstone, ashlar and facing stone products (Photo 5). Dacite ash, granite gneiss and basalt are quarried from the **Nipple Mountain, Canyon** and **Gemini** quarries respectively, all located east of Kelowna. The company now employs about 25 people. During 2001 Kettle Valley opened a sales office in northern California to service that growing market.

Okanagan Opal Inc. markets attractive jewelry made from fire opal mined at the **Klinker** property, located west of Vernon.



Photo 3. Processing plant and stockpiles, Craigmont magnetite tailings operation.



Photo 4. Ashcroft processing plant, now owned by Industrial Mineral Processors of Calgary.

Several other moderate to large-sized metal mines remain on care and maintenance status, awaiting higher metal prices or discovery of additional ore. Imperial Metals Corp. owns the **Similco** porphyry copper-gold mine and mill complex at Princeton, and the **Invermay** project near Hope. Similco has a resource of 142 million tonnes grading 0.397% Cu in the area of Pits 2 and 3 on the Copper Mountain side of the property.

The dormant **Blackdome** gold-silver mine of J-Pacific Gold Inc. and Jipangu Inc. remains on care and maintenance after operating in the 1980's and again briefly from October 1998 to May 1999. The 200 tonne-per-day mill (Photo 6) is intact, awaiting a higher gold price and future discoveries. A 2001 structural geology study by SRK Consulting concluded there are three high-priority targets for discovery of new epithermal veins. These could be explored by underground bulk sampling, trenching and drilling. In addition, SRK reviewed and reclassified the existing resource estimate in accordance with CIMM standards. The Inferred Mineral Resource now stands at 124 120 tonnes grading 12.8 g/t Au and 33.7 g/t Ag.

Orphan Boy Resources Inc optioned the **Goldstream** property north of Revelstoke, including the dormant copper-zinc mine and mill (Photo 7). The company drill-tested a combined geochemical, geophysical and geological tar-



Photo 5. Home constructed using "Mountain Ash" (dacitic ash) and "Shadow Ridge" (basalt) facing stone. Photo courtesy of Kettle Valley Stone Company.



Photo 6. Aerial view of Blackdome mill and mine property, owned by J-Pacific Gold Inc. and Jipangu Inc.

get east of the mine, and carried out a grassroots surface program in the C-1 grid area, some 10 kilometres west of the mine. The latter discovered massive sulphide float boulders near the projected extension of the Goldstream mine horizon. Named the "Boutwell discovery", these boulders are anomalous in copper. The Goldstream mine operated from 1983 to 1984 and from 1991 to 1996, milling 2.21 million tonnes at a recovered grade of 3.54% Cu, 0.36% Zn, and 11.86 g/t Ag.





Photo 7. Aerial view of the Goldstream mill (centre) and camp/office (upper right). Photo courtesy of Orphan Boy Resources Inc.



Photo 8. Diamond drill (lower left) in the Afton pit.

## DEVELOPMENT PROJECTS

The largest exploration and development project in the region in 2001 was the **Afton Mine** porphyry copper-gold-silver-palladium project of DRC Resources Corp. From 1977 to 1987, a subsidiary of Teck Corp. operated the Afton open pit (Photo 8) located ten kilometres west of Kamloops. Subsequent production came from the nearby Crescent, Pothook and Ajax pits prior to final closure in 1997. The original Afton pit exploited mainly “secondary” (supergene) mineralization comprised of native copper and chalcocite with lesser bornite and chalcopyrite.

DRC’s drilling in 2000 and 2001 tested the steeply dipping breccia zone (the “primary feeder zone”) beneath and adjacent to the open pit. Twenty-eight deep holes in 2001 (approximately 15 000 metres) extended the 80-metre wide mineralized breccia zone to over 800 metres in strike length. Finely disseminated chalcopyrite and bornite with very minor native copper and chalcocite have been intersected from 150 to 950 metres below the surface with the zone remaining open along strike, to surface and to depth (John Ball, Electronic Communication, February 20, 2002).

Significant intersections beneath the southwest pit-rim included hole 2K01-42 that graded 1.53% Cu, 1.2 g/t Au, 0.21 g/t Pd, and 2.5 g/t Ag over a 204 metre core length beginning at 550 m, and hole 2K01-46 that graded 1.43% Cu, 0.82 g/t Au, 0.07 g/t Pd and 2.1 g/t Ag for a 306 metre core length beginning at 324 metres. Also of interest were two holes that intersected high palladium values that do not appear to be associated with significant copper mineralization. Holes 2K01-24 and 2K01-37 each cut 3.05 metre intersections grading 4.11 g/t Pd (with 0.03% Cu) and 7.95 g/t Pd (with 0.19% Cu) respectively.

A February 2001 scoping study by Behre Dolbear & Company Ltd. was based on an Indicated Mineral Resource of 22.7 million tonnes grading 2.0% Cu, 1.54 g/t Au, 6.8 g/t Ag and 0.14 g/t palladium. They determined that the Afton project “has favorable economic possibilities with low production costs, moderate capital requirements, and relatively low environmental concerns. Block Caving at a rate

of 4,500 tons per day was selected because of amenable geotechnical conditions” (DRC Resources News Release, February 28, 2001).

In November 2001, DRC released an updated Mineral Resource Study by J.J. McDougall that said the drilling to date “indicates a continuous mineral zone 850 metres in length, with a depth of 775 metres below the upper contact of the primary mineral zone”. McDougall estimated that the indicated resource is now 34.07 million tonnes grading 1.83% Cu, 1.4 g/t Au, 0.1 g/t Pd and 5.5 g/t Ag, plus an additional inferred resource of 5.91 million tonnes at a lower grade. In 2002, DRC plans additional drilling to increase the length and depth of the mineral zone and to test the zone towards surface to the southwest.

Also late in the year, Abacus Mining and Exploration Corp., announced that it was negotiating with Teck Cominco Ltd. to acquire Teck’s **Afton area** properties which include the Rainbow, Crescent and DM-Audra occurrences, along with the Ajax West and East pits.

Near Princeton, the **Tulameen** thermal coal project of Pacific West Coal (UK) Ltd. was taken over by Compliance Coal Corporation, a private company headed by James O’Rourke. It has now been renamed the **Basin Coal** project. In late summer, Compliance mined a 10 000 tonne bulk sample from a small open cut (Photo 9) and trucked approximately 1000 tonnes to potential customers.

The coal is high volatile bituminous B and C in rank and company studies indicate that it can be cleaned to produce a product with acceptable levels of ash, moisture, sulphur and energy content. Potential markets are industrial users in the Lower Mainland, northwestern United States and overseas. Initially the project could employ up to 30 people.

At year-end, Compliance was finalizing an application to amend their current Mines Act permit to allow a wash plant, and to raise the allowable mining rate to 250 000 tonnes per year from 100 000 tonnes per year. A feasibility



Photo 9. View looking southerly (along strike) across the Tulameen Coal project of Compliance Coal Corporation. The coal measures (black) dip shallowly to east (left).

study is being completed and the company plans a public listing over the winter months. It is anticipated that mining could begin in Spring 2002.

Also at Princeton, the Ministry of Energy and Mines issued a mining lease to Zeo-Tech Enviro Corp. for its proposed **Zeo-Tech** zeolite quarry. No mining was done but the company continued to work towards production of zeolite for use in lightweight specialty concrete and in absorbent products.

Several other projects in the region are on hold awaiting higher commodity prices, financing and/or permits. The largest is the **Prosperity** porphyry gold-copper deposit of Taseko Mines Ltd., located southwest of Williams Lake. Reserves stand at 633 million tonnes grading 0.253% Cu and 0.466 g/t Au.

The **Bralorne** gold project, a joint venture of Bralorne Pioneer Gold Mines Ltd. (50%), Avino Silver and Gold Mines Ltd. (25%) and Coral Gold Corporation (25%), received a Mine Development Certificate in 1995 but has not yet reached commercial production. In 2001, a 21.4 metre raise to surface was mined on the **Peter Vein** (Cosmopolitan Crown Grant). Bralorne reported that the raise averaged 25 g/t gold over an average width of 1.3 metres. The company plans to conduct further test mining in this area, stockpiling the ore for processing when the milling facility is complete.

At the **Getty North** porphyry copper project of Getty Copper Corporation, a small program of geological mapping and soil geochemistry was conducted. Located north of Highland Valley Copper, the Getty North deposit is estimated to contain a resource of 72.1 million tonnes grading 0.31% Cu, which includes an oxide resource of 10.0 million tonnes grading 0.40% Cu. Getty is studying the feasibility of an SX-EW operation to treat the oxide resource.

Near Vernon, the **Lumby** graphite-sericite project of Quinto Technology Inc. was dormant. The company has a permit to produce up to 75 000 tonnes per year.

## EXPLORATION PROJECTS

### **STRATIFORM BASE-METAL TARGETS**

Trenching and/or drilling explored several exciting new stratiform base-metal prospects, discovered last year. The most promising remains the **Spire** prospect. The property is located north of Revelstoke, about 7.5 kilometres southwest of the Goldstream mine. Excavator trenching was conducted by Imperial Metals Corp. to follow up on high-grade Bessemer-style VMS mineralization discovered in a roadcut in the fall of 2000. The 2001 trenching extended the known strike length of mineralization to approximately 100 metres. The best channel sample returned 7 metres



grading 0.9% Cu and 1.8% Zn, including 1 metre grading 3.4% Cu and 2.9% Zn (Imperial Metals website).

The new trenching program was designed to follow-up on results from a late-2000, 7-hole drill program. The best drill intersection in that program was 3.12 metres grading 0.51% copper and 1.08% zinc. Optimism for the Spire prospect remains high because the host rocks, grade, width and style of mineralization suggest a stratigraphic and structural setting similar to the Goldstream mine.

Much-anticipated drilling of the **Blacktop** zone (Fox property) of Gitennes Exploration Inc. was completed in April 2001, following a large program of airborne and ground geophysics, and limited geochemical and geological work. The drill program was designed to test geophysical anomalies coincident with the down-dip projection of the high-grade massive sulphide copper-zinc-gold-silver-lead Blacktop zone. This showing was discovered in a Coquihalla highway roadcut, 27 kilometres north of Merritt (Photo 10).

The Blacktop zone is hosted in sheared and altered intermediate volcanic rocks of the Upper Triassic Nicola Group. Mineralized clasts are associated with sericitic, cherty and baritic rock fragments. Gitennes reported that the drill holes intersected fault breccia with sulphide fragments over widths of up to 20 metres, and the best hole cut 0.7 metres grading 16.50% Zn, 1.18 % Cu, 87.4 ppm Ag and 450 ppb Au.

Although about 1200 claim units were staked during the original Fox mini-rush, little or no work was done on tie-on ground by Fjordland Minerals Ltd., Platinova A/S. or other companies and individuals. Gitennes, however, plans to do more fieldwork on their properties in 2002.

Another high-profile project was the **Broken Hill** (Vista-Navan showings) zinc-lead-silver project of Cassidy Gold Corporation, located seven kilometres northeast of the village of Avola on the North Thompson River. Staked by Prospectors Assistance grantee Leo Lindinger and optioned to Cassidy in early fall 2000, the property covers high-grade showings of stratiform "Shuswap-style" mineralization along new logging roads that cross the zone intermittently along a strike length of several kilometres. Host rocks are amphibolite-grade metasedimentary rocks of the Shuswap metamorphic complex.

Following a small program of gravity, soil and geological surveys, Cassidy partially drill-tested the two main showings in January 2001. Despite the presence of numerous outcrops of thin (20-40 centimetre wide) flat-lying, massive sulphide (grading up to 24.3% Zn, 4.89% Pb and 62.6 g/t Ag) Cassidy's best drill hole hit only 2.52% Zn over 3.9 metres, with an estimated true width of 2.2 metres. Cassidy returned the claims to Lindinger in late 2001.

On the **Red Hill** property near Ashcroft, Teck Exploration Ltd. (now part of Teck Cominco Ltd.) drilled over 3600 metres in 17 holes to test numerous stratiform copper-zinc-gold-silver targets that occur within a thick package of Lower Triassic bi-modal volcanics with minor shale interbeds. The host rocks are thought to be correlative with rocks which host the Kutcho Creek Cu-Zn deposit in north-



Photo 10. Geologists examine a trench with massive sulphides at the Blacktop zone, Fox property.

ern BC. Although Teck released no results, previous drill holes at Red Hill have cut up to 20 metres of disseminated to semi-massive sulphides (mainly pyrite). One old hole by BP Selco is reported to have intersected 7.7 metres of VMS-style mineralization grading 2.5% Cu, 2.8% Zn, 77 g/t Ag and 0.37 g/t Au (Photo 11).

North of Little Fort, Cassidy Gold Corporation drilled one hole on the **Crazy Fox** (Demers Creek) base-metal prospect. Unfortunately the hole had to be abandoned in a fault zone at 249 metres, before it reached its intended depth. The hole was designed to test coincident EM and copper-in-till anomalies. The property is underlain by mafic volcanic rock and black shale of the Upper Triassic Nicola Group, along with pale buff rhyolitic rock that has not been dated but could be part of the Nicola sequence, or could be a younger (Eocene?) intrusion.

## **PORPHYRY AND RELATED TARGETS**

G W R Resources Inc. drilled seven holes in late 2000 and early 2001 on the **Ann** property. The holes tested alkalic porphyry-style copper-gold mineralization near the Aurizon Gold zone. The best result reported by the company was 46.5 metres grading 0.219% Cu and 0.39 g/t Au



Photo 11. Gossan (light area) on Teck's Red Hill VMS Cu-Zn property south of Ashcroft. The Trans Canada Highway is visible in the distance.



beginning at 80 metres in hole AZ-00-1. The company also acquired the nearby **Tam** property and drilled three holes; the best intersection was 17.4 metres grading 0.61% Cu, 0.18 g/t Au and 6 g/t Ag.

Christopher James Gold Corp. was busy on its large **Silver Lake** (PGR) property north of Little Fort. The **Worldstock** Cu-Ag-Mo-Au-Zn target (Photo 12) was explored with I.P. and magnetic surveys, geological mapping, soil geochemistry, prospecting, excavator trenching and a seven-hole, 879-metre drill program. The work defined a large (greater than 1000 by 700 metre) chargeability anomaly that is partially coincident with copper-in-soil anomalies.

The trenching and drilling showed that the area is underlain by an extensive stockwork of vuggy quartz-carbonate-pyrite veinlets cutting sericite-, carbonate- and locally potassium feldspar- or clay-altered mafic volcanic rocks of the Nicola Group. Higher copper values and potassium feldspar-alteration zones are commonly associated with rare, narrow crowded feldspar dikes. The best



Photo 12. Ron Wells (Consultant to Christopher James Gold Corp.) and Paul Schiarizza (BC Geological Survey) examine a trench on the Worldstock copper prospect, Silver Lake property.

hole (#1) cut a 10.4 metre section averaging 0.38% Cu and 2.6 g/t Ag. The mineralization is interpreted to be part of a high-level, zoned porphyry system by company consultant Ron Wells.

In addition to the Afton mine project described above, several other properties in the Iron Mask batholith near Kamloops, were explored by small programs. Planet Ventures Inc. drilled two short holes on alkalic porphyry copper-gold targets on the **Planet** property, and Snowfield Development Corp. conducted surface surveys on the **Galaxy** (DCE) property.

### **SKARN TARGETS**

Near the historic Nickel Plate gold mine at Hedley, Goldcliff Resources Corporation worked on its **Panorama Ridge** gold skarn property. The Nordic, York, Spar and several other prospects were explored by stream sediment and soil geochemistry, geological mapping, prospecting and diamond saw channel sampling. Numerous old trenches and prospect pits were located and extensive areas of skarn with pyrrhotite-pyrite-chalcopyrite mineralization were identified.

The showings are hosted by altered sedimentary and volcanoclastic units (Hedley and Whistle Formations?) of the Upper Triassic Nicola Group that are intruded by diorite of the Hedley intrusions. Goldcliff reported that a trench on the York prospect, dug by Placer Development in 1985, ran 0.81 g/t Au over 45 metres. Additional work, possibly including trenching and drilling, are being planned for next year.

East of 100 Mile House, Starcore Resources Ltd. optioned the **Fox** molybdenum-tungsten property from owner Dave Ridley. This promising new skarn prospect is located about 25 kilometres east of the former producing Boss Mountain molybdenum mine. Mineralization has been traced by prospecting over a strike length of more than two kilometres, and is hosted by Paleozoic metasedimentary rocks near the contact with the Cretaceous Deception stock.

Starcore reported that scheelite (up to 0.69% W) and molybdenite (up to 4.9% Mo in grab samples) appear to occur in separate areas. Garnet, diopside, vesuvianite, quartz and calcite have been identified in the skarn by this author. Soil and rock geochemistry has also identified local anomalous Au and Zn values on the property. This discovery benefited from Prospectors Assistance Program funding support to Ridley during the 1999 and 2000 field seasons.

### **VEIN TARGETS**

On the large **Silver Lake** property, north of Little Fort, Christopher James Gold also discovered narrow quartz-carbonate veins carrying high-grade copper-silver-gold mineralization in the **New Discovery "A"** target area (Photo 13). Following up on high-grade float boulders found in 2000, the company did geophysical surveys, geological mapping, prospecting and excavator trenching to discover the high-grade veins in bedrock.

Subsequent drilling at the New Discovery “A” target returned up to 14.7% Cu, 98.9 g/t Ag and 0.3 g/t Au over 0.55 metres according to company releases. Patchy chalcopyrite and pyrite occur in quartz-calcite veins that cut magnetite-, pyrite-, and chlorite-altered mafic volcanics of the Nicola Group. Similar mineralization was also found in drill holes along trend to the west, some 600 metres west of the Discovery “A” area and 400 metres east of the **New Discovery “B”** area.

South of Kamloops, on the **Melba** property, Walloper Gold Resources Ltd. explored several vein targets in volcanics of the Nicola Group. A new discovery is the **Chalcedonic Quartz Breccia** vein that strikes northerly, dips moderately to the west, is up to 5 metres wide and is exposed over a strike length of 34 metres in one trench. Minor disseminated pyrite is present in the banded chalcedonic quartz, and an epithermal origin is suspected. Walloper conducted diamond saw channel sampling and drilled 11 holes in fall 2001. In February 2002, Walloper reported that only weakly anomalous Au, As, Hg and Mo values were present in the trench and drill samples.

The **Pongo** property (**Kajun** showing) near East Barriere Lake was trenched and drilled by partners Verdstone Gold Corp. and Molycor Gold Corp. The drill holes encountered vein and stockwork-style quartz-carbonate-sulphide mineralization with interesting base and precious metal values. For example, Hole 01-04 cut 3.0 metres grading 0.12% Cu, 4.79% Pb, 3.12% Zn, 107 g/t Ag and 0.72 g/t Au. The mineralization mainly occurs in black phyllite beneath a shallowly dipping thrust fault that has marble in the hangingwall. The partners believe the setting to be similar to the Samatosum mine to the south, and that there is potential for VMS deposits nearby.

At the **Siwash North mine** (**Elk** property) east of Merritt, Fairfield Minerals Ltd. reported discovery of two new high-grade gold-silver veins. In the **Siwash East** area, 1.7 kilometres east of the mine, trenching encountered a 20 centimetre-wide vein that assayed 21.7 g/t Au and 32.9 g/t Ag over a 0.5 by 0.5 metre panel sample. Trenching in the **Gold Creek West** area found a 30 centimetre-wide vein that ran 20.5 g/t Au and 59.6 g/t Ag over a 0.8 by 0.5 metre panel. Mine production (1992-1994) from Siwash North totaled more than 1440 kilograms (51 000 ounces) gold.

Fairfield also reported discovery of gold-bearing epithermal quartz float boulders over an area of one square kilometre in **Prospect Valley**, 50 kilometres west of Merritt. Forty claim units were staked. Grab samples run up to 43.34 g/t Au with anomalous Ag, As, Sb and Mo. Volcanic rocks of the Spences Bridge Group and granodiorite of the Mount Lytton Complex underlie the area. There is no history of previous work here, although a nearby Regional Geochemical Survey silt sample contained 150 ppb gold.

## MAGMATIC TARGETS

Relatively strong prices for platinum group metals (PGMs) and tantalum increased interest in magmatic targets. Near Little Fort, Cusac Gold Mines Ltd. drilled several holes at the **Clearwater Platinum** project (**Golden**



Photo 13. Geologists examine high-grade copper float in a trenched roadcut at the New Discovery “A” target on the Silver Lake property. Trenching below the road to the north (left) discovered vein-style quartz-carbonate-chalcopyrite-pyrite mineralization in bedrock.

**Loon** claims). Unfortunately, results were disappointing and the property was returned to the vendor. The property covers a six to ten kilometre-long, compositionally zoned, ultramafic body that occurs between the Upper Triassic Nicola Group and the Triassic-Jurassic Thuya batholith. The company’s interest in the property was first prompted by a float sample of dunite, collected by J. McDougall in 1999, which assayed 13.7 g/t Pt.

At **Tulameen**, Bright Star Ventures Ltd. explored their 9500-hectare claim group in search of the lode source for the district’s historic placer platinum production. The work comprised an airborne magnetic/electromagnetic survey, prospecting and rock sampling. Several copper, chromite and PGM targets have been identified for future drilling including the **Grasshopper Mountain** area.

Unusual syenite-related PGM mineralization was the focus of a small exploration program by Santoy Resources Ltd. at **Allendale Lake**, east of Okanagan Falls. The prospect was optioned from geologist Adam Travis who staked it as part of his 2000-2001 Prospectors Assistance program. The alkalic Allendale Lake stock is approximately 2.5 kilometres in diameter and includes megacrystic syenite porphyry and shonkinite phases. A grab sample from a previously known prospect (the “**Spoon** showing”) assayed 0.31% Cu, 0.93g/t Pd, 0.19g/t Pt and 0.70g/t Au.

The late-2000 rise in spot prices for tantalum to the \$US400 per pound range led to renewed interest in carbonatite intrusions in British Columbia. In the **Blue River** area, in particular, these rocks are known to contain highly anomalous values of tantalum, niobium and phosphate. Commerce Resource Corp. staked the Verity, Fir and several other carbonatite deposits late in 2000, and conducted a large exploration program in 2001. Several other companies acquired properties nearby.

At **Verity**, Commerce compiled previous drilling information and calculated a new resource figure. The company reports the inferred resource now stands at 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>. In addition to geological, geophysical and geochemical surveys, five holes were drilled, with carbonatite inter-



sections ranging from 19 to 70 metres and grades comparable with previous drilling. At Verity, pyrochlore contains tantalum and niobium, and apatite is the source of phosphate values.

To the south at the **Fir** property, six drill holes tested two flat-lying carbonatite layers that range in thickness from 6.1 to 50 metres. The company expects grades at Fir will be higher than at Verity based on four holes drilled in the 1980s. Tantalum and niobium values are reported to occur in ferrocolumbite. See the report by Jody Dahrouge in this volume for further details.

The **Perry River** carbonatite belt, northeast of Shuswap Lake, was also the subject of staking and exploration for tantalum-niobium and rare earth elements. Commerce Resources Corp. and Cross Lake Minerals Ltd. staked the largest blocks, with the former acquiring the 231-unit **Perry** property and the latter acquiring the **Myoff Creek** property, which includes the **Ren** occurrence. Four trenches at Ren tested just 410 metres of the known 12-kilometre strike length of the carbonatite. Anomalous amounts of niobium, tantalum, lanthanum, cerium and neodymium were reported over widths of 50 to 120 metres. To the southwest, partners John Kerr and Warner

Gruenwald, in part supported by a Prospectors Assistance grant, prospected the **Tan** claims.

## COALBED METHANE

In response to the recent California energy crisis and the forecast of increased demand for natural gas, companies are taking an interest in coalbed methane (CBM) potential throughout British Columbia. In the South-Central region, CBM potential appears highest in the **Hat Creek**, **Similkameen (Princeton-Tulameen)** and **Merritt** coal basins. It is likely that the Province will begin issuing CBM tenures for these basins in 2002. In the **Merritt** coal basin, Forum Ventures acquired an option to gain a 50 per cent interest from Imperial Metals Corp. in a 506-hectare property that contains the Coal Gully Hill, Middlesboro and Coldwater Hill collieries. Forum plans to investigate both CBM and conventional coal mining opportunities.

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