

SOUTH-CENTRAL REGION

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SUMMARY AND TRENDS

Exploration expenditures in South-Central BC in 2009 fell to approximately \$21 million ending a decade long run of increasing expenditures, including all time spending highs in the previous two years (Figure 4.1). During the year the financial crisis, which started in 2008, eased somewhat as markets and commodity prices rebounded and companies were again able to raise money. Many companies chose to conserve capital during the year to meet administrative expenses, but not fund field programs after having drawn down the corporate coffers in recent years. The sharply lower drilling total reflected, in part, the financing crisis, but more significantly that many advanced programs have moved beyond large definition drilling programs and are now in pre-production development or advanced resource studies. This year's total of 41 000 m (Figure 4.2), therefore, largely represents pioneering drillholes to test step outs or new exploration models rather than "grid" drilling.

Given lean exploration budgets for junior companies, there was more reporting of grassroots exploration at properties that have seen more focused exploration in recent seasons. An apparent rise in grassroots exploration from 3% to 7% of the total exploration total (Figure 4.3) partially reflects this, but the actual amount spent was similar to previous years. It was interesting to observe some discoveries reported simply from "walking the property". Many companies also spent time this year analyzing previously collected data, generating new exploration concepts and preparing for future programs.

In several cases companies shifted their exploration focus to gold properties to align with the strong gold prices, often at the expense of commodities such as molybdenum. There was growing interest through the year in rare earth elements with many of the region's nepheline syenites being tenured.

The south-central region saw significant capital investment at mine and mine development projects. At **Highland Valley Copper** the mine life extension to 2019 involved a \$120 million capital investment this year. Mine development at the **New Afton** project continued with an investment of approximately \$66 million toward full production in late 2012. Development at the **Copper Mountain** project is progressing rapidly with an estimated \$50 million capital investment aimed at mill construction and other site activities. Pre-mining stripping is anticipated in 2010 with full production to begin shortly thereafter.

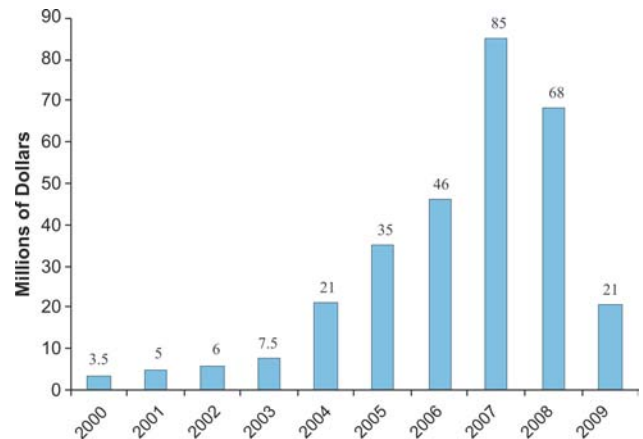


Figure 4.1. Annual exploration spending, in millions of dollars, south-central region.

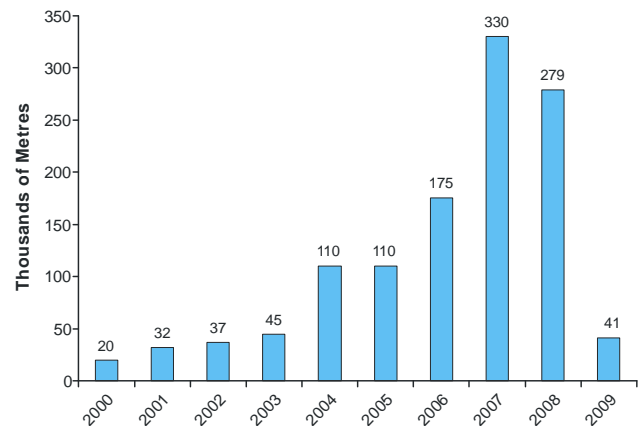


Figure 4.2. Annual exploration and development drilling, in thousands of metres, south-central region.

Three projects are now in the Environmental Assessment process: the **Prosperity** (copper-gold), **Harper Creek** (copper) and **Ruddock Creek** (zinc, lead, silver) projects. Ongoing work at the Prosperity project has increased the reserves of the deposit by almost 70% and made it one of the largest undeveloped deposits in the country. A recommendation from the review of the project is anticipated in early 2010. Work at the Harper and Ruddock Creek properties this year was aimed at better understanding the deposits and little was done to move them along in the review process.

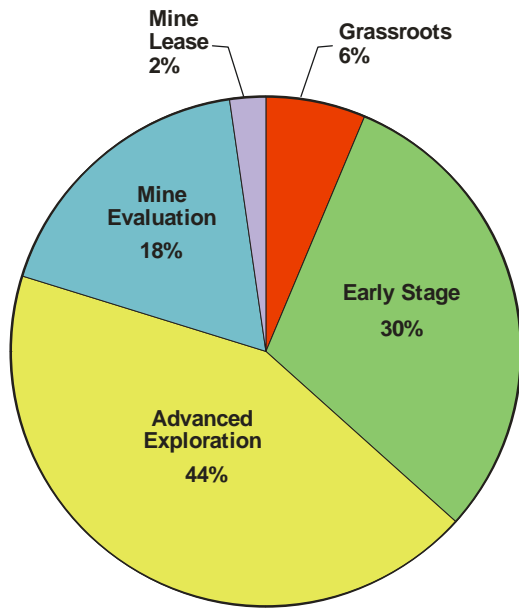


Figure 4.3. Annual exploration expenditures divided by exploration stage, south-central region.

Owing to this region's blessing of high quality, bulk mineable, porphyry-style deposits this target remains a perennial favorite. Copper-gold projects remained the most significant of these, with many companies focusing more closely on the gold-enriched zones of their projects as was the case at the **Lac La Hache**, **Newton Mountain** and **Miner Mountain** projects. Activities at the **Ajax**, **Getty Copper** and **Dot** properties were focused on completing economic assessments, feasibility studies or resource calculations. Field programs were completed at the **Rateria**, **Logan Copper**, **Yalakom** and **Taseko** properties. Copper-molybdenum targets were less active this year, perhaps from the volatility of molybdenum prices which were off from recent very high prices. At the **Crazy Fox** property a minor drill program was completed but resources were also directed toward the Ace showing: a nearby gold showing on an adjoining property. Similarly at the **North Brenda** property copper-molybdenum exploration was sidelined in favor of exploring for gold in a similar setting to the nearby **Elk** project.

Exploration for high-grade gold-silver veins occurred at the **Bralorne** Mine project where the company is intensely exploring the BK zone in an effort to re-open this prolific past producer. Scoping level studies are underway at both the **Elk** and **Blackdome/Elizabeth** projects to set a pathway and resume mining at these past producers of gold and silver. At the **Panorama Ridge**, **Spanish Creek**, **Windpass** and **Prospect Valley** properties higher grade gold-silver veins are present within broad zones of low-grade gold mineralization that are under exploration for bulk tonnage gold mineralization. The recent high gold prices have encouraged companies to direct ship high-grade bulk

samples for custom milling as was seen at the **Watson Bar** and **Bonaparte Gold** properties. Both projects shipped mineralized rock to the Kinross Gold Corporation owned mill in Republic, Washington.

It was a quieter year for stratiform polymetallic massive sulphide deposits after several years of steady interest. Prices for zinc and lead have steadily risen through the year and with smelting facilities for those metals within the province, interest should return to the numerous deposits in this region. Programs were completed at the **Moore** and **SPN** properties on the Adams Plateau whilst many other projects were idle.

As mentioned above, rare earth elements and other high-technology metals were of keen interest to the industry this year. Anchoring much of the exploration activity in the North Thompson River area, the **Blue River Carbonatite** project is defining a growing tantalum and niobium resource. At the **Mount Copeland** project, core from last year's drilling for skarn-hosted molybdenum is being analyzed for light rare earth elements owing to the presence of nepheline syenites at the property.

Each year discoveries that have been reported or been made aware to Ministry staff are noted. It is often challenging to sort out truly original discoveries from new zones on established properties or known showings that haven't been captured in previous reporting. None the less, it is interesting to feature them as insights to the fact that in mature exploration districts there are still discoveries to be made and that there is a lot of prospective geology in the province that has simply been overlooked or never examined at all. The specifics of the discoveries are discussed in more detail in the main body of the paper. The author accepts that there will be omissions in this list as it cannot represent all of the discoveries that have been made this year.

In the Adams Lake region three prospectors have made what appear to be two original discoveries: Tom Robinson's Longspur showing at the **Midday** property and partners Tom McDonald and Alfie McKay at the Hammer zone on their **Stellar** property. Both properties are in prospective zinc-lead-copper areas and both are showing gold enrichment as well. In the Guichon Creek batholith near Logan Lake, two companies are reporting success in finding new mineralization: Happy Creek Minerals Ltd announced the new NTP zone at its **West Valley** property and SNL Enterprises reported success at the Blue, Midway and Cliff showings at its **Logan Copper** property. Both of these properties are hosted in a similar geological environment and are relatively close to the world-class Highland Valley copper-molybdenum mine. In the Goldbridge camp, where prolific amounts of gold have been produced from high-grade mesothermal gold-quartz veins, two properties announced discoveries. At the **Bralorne Mine** project of Bralorne Gold Mines Ltd three new veins were encountered in drilling at the BK zone, the significance of which is still undetermined, but it is encouraging to realize that after over 80 years

since the start of mining and exploration new veins can still be found. Closer to Lillooet, the **Ample-Goldmax** property often yields high-grade gold intersections and this year Supreme Resources Ltd announced the results of some 2008 drilling that appear to have revealed a new area of mineralization. A final discovery involves some late 2009 work at the **Newton Mountain** project where Amarc Resources Ltd have announced long intersections of low-grade gold mineralization at what appears to be a transitional environment from porphyry-style copper-gold through to epithermal-style gold mineralization.

MINES AND QUARRIES

All of the operating mines in the region are listed in Table 4.1 and their locations are shown on Figure 4.4.

METAL MINES

Highland Valley Copper, a partnership of Teck (97.5%) and Highmont Mining Company Ltd (2.5%), continues to invest a large amount of capital and operation time towards both the 2013 and 2019 mine plans (Figure 4.5). Stripping was nearing completion on the east wall push back in the Valley pit when geotechnical concerns forced the company to address stress cracks that were encountered. Final remedial designs are anticipated near year end and will likely involve a large amount of additional stripping to reduce the load on the pit walls and release of the 2013 mine plan ore. The company received approval in October for a new ore zone within the Valley pit which it will mine in conjunction with stripping above the west wall as part of the 2019 mine plan. Shortfalls in mill feed from the Valley pit are anticipated during this time and will be supplemented by lower grade ore from the Lornex and Highmont pits. Capital expenditures related to mine extension development rose through the latter part of the year in light of the geotechnical issues and are estimated at approximately \$120 million.

Average mill throughput is forecast to be similar to 2008 levels at 121 000 t per day or approximately 44 Mt for the year (Figure 4.6). Copper production is estimated at 115 000 to 120 000 t compared to an actual production of 119 300 t for 2008. Molybdenum production is forecast at around 2700 t which is up significantly from the actual production of 1905 t in 2008 owing in part to the mining of higher grade portions of the Valley pit. The company has been forecasting a drop in production for 2010 until the Valley pit becomes fully accessible and will have to be resourceful to maintain steady production levels.

Several other mine-mill complexes remain on care-and-maintenance status. Many of these have been closed since the mid-1990s, awaiting the discovery of additional ore and/or higher metal prices. They have permits and

substantial infrastructure in place and represent opportunities for renewed mining or custom milling. These complexes include the **Goldstream** copper-zinc, **Blackdome** gold-silver, and **Bralorne** gold mines. Efforts at bringing these mines back into production are discussed in subsequent sections.

COAL MINES

There is one coal producer in the south-central region, the **Basin** mine of Compliance Energy Corporation located near Coalmont (Figure 4.7). The mine produces thermal-grade coal but has been on care and maintenance since 2007. The company is reporting progress on the sale of the mine operation to Jameson Resources Limited of Australia. Feasibility studies are underway and currently reported resources include 87 Mt in the measured and indicated category plus 36.7 Mt in the inferred category. Results of the full feasibility are expected in the second quarter of 2010, at which time the transfer of mine ownership may occur.

INDUSTRIAL MINERAL QUARRIES AND AGGREGATES

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.

The **Kamloops** cement plant and **Harper Ranch** limestone quarry of Lafarge Canada Inc continue to supply cement to meet strong demand in western Canada. Lafarge also draws materials from the **Falkland** and **Buse Lake** quarries, which provide gypsum and alumina-silica rock respectively.

The **Decor** pit of Pacific Bentonite Ltd supplies alumina-rich burnt shale to the Lafarge cement plant in Kamloops. 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, other uses exist such as the 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.

Also near Cache Creek, Graymont Western Canada Inc operates the **Pavilion** limestone quarry and lime plant on the Pavilion Indian Reserve. Graymont has a forty-year lease with the Ts'kw'aylaxw First Nation who form the bulk of the employees at the mine.

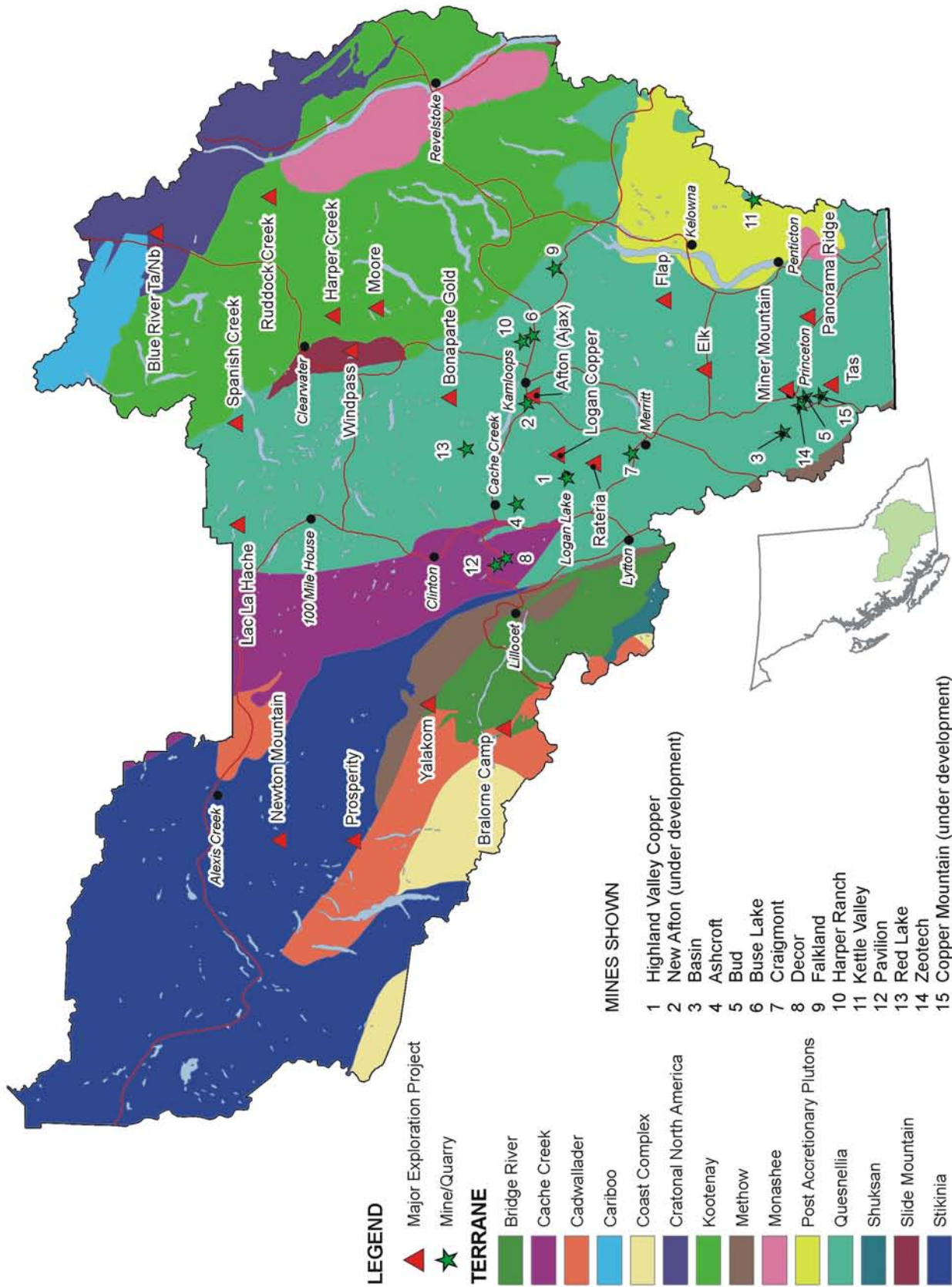


Figure 4.4. Mines, quarries and major exploration projects, south-central region, 2009.

TABLE 4.1. – SOUTH-CENTRAL REGION FORECAST MINE PRODUCTION 2009.

Mine	Operator	Deposit Type / Commodity	Forecast Production in 2009 (tonnes or kilograms)	Number of Employees	Proven and Probable Reserves (at Jan. 1, 2009)
Metals					
Highland Valley Copper	Teck / Highmont Mining Company Ltd	Calc-alkalic porphyry Cu-Mo	115 000 Mt Cu, 2 700 Mt Mo, minor Au and Ag	1 015	430 500 000 Mt at 0.30% Cu and 0.007% Mo
Coal					
Basin	Compliance Energy Corp	Thermal coal	0	On care and maintenance	
Industrial Minerals					
Ashcroft	IG Machine and Fiber Ltd (IKO Industries Ltd)	Basalt (roofing granules)	~350 000 Mt	55 (plant & quarry)	
Bud	Absorbent 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	60 - 70 000 Mt	~30 (plant; seasonal)	
Decor	Pacific Bentonite Ltd	Alumina, landscape rock		~2 (including trucking)	
Falkland	Lafarge Canada Inc	Gypsum	6 000 Mt	see Harper Ranch	
Harper Ranch	Lafarge Canada Inc	Limestone	~220 000 Mt	32 (plant & 3 quarries)	
Kettle Valley quarries	Kettle Valley Stone Company	Ashlar, flagstone, thin veneer		~40 (plant & quarries)	
Pavilion	Graymont Western Canada Inc	Limestone	190 000 Mt	~34 (plant & quarry)	
Red Lake	Absorbent Products Ltd	Diatomaceous earth		40 (plant & 3 quarries)	
Zeotech Bromley Creek	Heemskirk Canada Ltd	Zeolite			

East of Ashcroft, IG Machine and Fiber Ltd, a subsidiary of IKO Industries Ltd, operates the **Ashcroft** basalt quarry and roofing granule plant. 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.

Craigmont Mines Joint Venture operates the **Craigmont** magnetite operation located near Merritt where tailings from the old Craigmont copper mine are processed. The plant normally operates on a seasonal basis (March to December), however, due to strong demand, processing may continue through the winter months. 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 within the next one to two years and the company is evaluating several other possible feed sources.

At its plant in Kamloops, Absorbent 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.

Heemskirk Canada Ltd continues to market agricultural and absorbent products, produced from a stockpile at the **Zeo-Tech/Bromley Creek** zeolite quarry near Princeton. The material is transported to its plant in Lethbridge.

Opal Resources Canada 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 lahatic 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 United States of America (U.S.A.) and central and western Canada.

MINE DEVELOPMENT PROJECTS

The locations of mine development projects in the region are shown on Figure 4.4.

After a late 2008 announcement that the development of the **New Afton** mine was to be slowed, New Gold Inc has continued on a revised schedule to carry this project through to production in 2012. On the surface most work was suspended through the year; however, the mill building was completed and some mill components were installed (Figure 4.8). Much of the work at the site was conducted underground where development drifts to the base of the ore body were completed and the conveyor decline was significantly advanced. In the second quarter, advancement of the conveyor decline intersected the existing workings and provided a second access to the underground development that has facilitated more effective movement of equipment and personnel. Approximately 3 km of the 4.5 km conveyor access is now complete as well as over 5 km of underground



Figure 4.5. Overburden stripping at the east wall expansion of the Valley pit at the Highland Valley Copper mine near Logan Lake.



Figure 4.6. The mill at the Highland Valley Copper mine which processed approximately 44 Mt of ore in 2009.



Figure 4.7. The idle Basin thermal coal mine near Coalmont was the subject of a feasibility study this year as part of a potential sale and resumption of mining.

development (Figure 4.9). The company has also resumed dewatering the Afton pit into the Pothook pit. The capital expenditures on the project are estimated at \$66 million for the year, and the company reports an additional \$355 million will be required to bring the mine into full production. Underground development is expected to continue through 2010 and a resumption of surface activities thereafter in 2011.

The company has been actively working on updating its resources for the property from previous years' drilling of zones beneath the currently blocked out reserves (Figure 4.10). Currently stated measured and indicated resources are 65.6 Mt at 1.02% Cu and 0.77 g/t Au. Within that are probable reserves of 44.4 million tonnes of 0.98% Cu and 0.72 g/t Au that contain approximately 435 million kilograms of copper and 32 million grams of gold. The resources were reported as of September 2006, and with the significant changes in metal prices, exchange rates and new drill results since then, the update is timely.

The resumption of mining at the **Copper Mountain** project of Copper Mountain Mining Corporation and Mitsubishi Materials Corporation has advanced at a quick pace in 2009. The project involves the development of a super pit which incorporates three former pits and the construction of a new 35 000 t per day mill (Figure 4.11). Following the decision to proceed with the project in the fall of last year, the company has signed a definitive agreement with Mitsubishi Materials Corporation who has become a 25% share partner in the project and will purchase the mine's concentrates for the life of the operation. Soon after the company reported it had increased its proven and probable reserves to 211 Mt of 0.36% Cu and anticipated gold and silver credits. In early fall the company completed a successful financing and raised over \$50 million to fund some of their portion of the development costs. In September, pouring of the new mill building foundations began and should be completed in early winter with erection of the building commencing in spring 2010 (Figure 4.12). The company has ordered its fleet equipment of electric shovels, trucks and dozers in anticipation of beginning pre-mining stripping in 2010. Capital expenditures to the third quarter were \$36.8 million dollars on the project and final expenditures for the year are yet to be reported but are likely to be over \$50 million. Current estimates for the total capital cost for the project will be \$437 million. The project continues in the Mine Development Review Process for a final permit amendment prior to the full resumption of mining activities.

MINERAL EXPLORATION HIGHLIGHTS

Major exploration projects are listed in Table 4.2. and their locations are shown on Figure 4.4

The announcement of the Geoscience BC QUEST-South Project is a major investment in public geoscience and will provide a huge amount of new information to



Figure 4.8. The completed mill building at New Gold Inc's New Afton mine development site as seen from the Trans Canada Highway.



Figure 4.9. A Jumbo at the New Afton mine development site which now includes over 5 km of underground development and a 4.5 km conveyor decline that is nearing completion (photo courtesy of New Gold Inc).

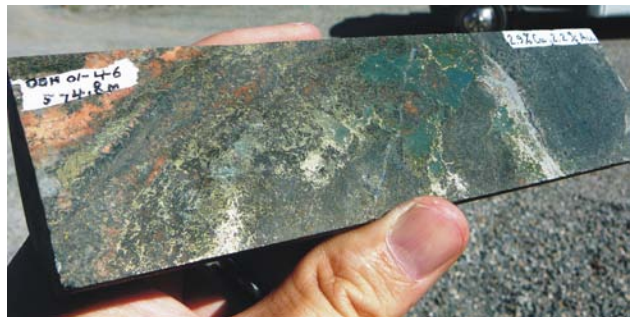


Figure 4.10. Core sample of high-grade, deep mineralization at the New Afton project which may bolster currently outlined resources in an update currently underway.

guide companies exploring in the region. The \$2.5 million program of geophysics and geochemistry spans from Williams Lake to the U.S.A. border and incorporates the Kamloops, Merrit and Princeton regions. A 45 000 square km airborne gravity survey was launched in the summer as well as the field collection of over 1000 new stream sediment samples (Figure 4.13). Despite its extensive exploration history, stream sediment sample density in the Kamloops region is some of the lowest in the province. The program will also reanalyze over 9000 archived samples to modern standards. The industry can look forward to the release of the data generated from this project during 2010.

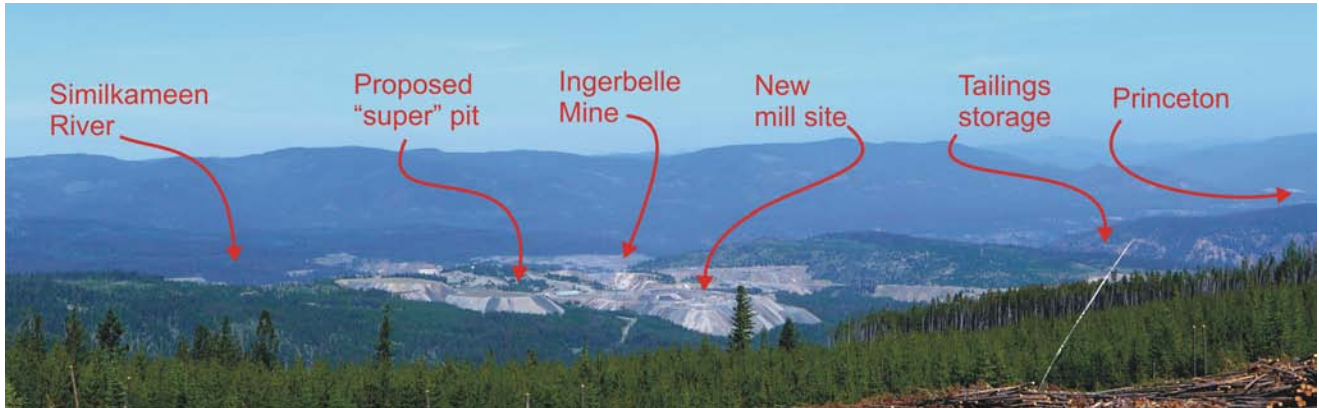


Figure 4.11. Panorama of the Copper Mountain site south of Princeton where a new 35 000 t.p.d. mill is under construction by Copper Mountain Mining Corporation.



Figure 4.12. Foundations being poured this fall will allow the construction of a new mill building at the Copper Mountain mine development to begin in the spring of 2010 (photo courtesy of Copper Mountain Mining Corporation).

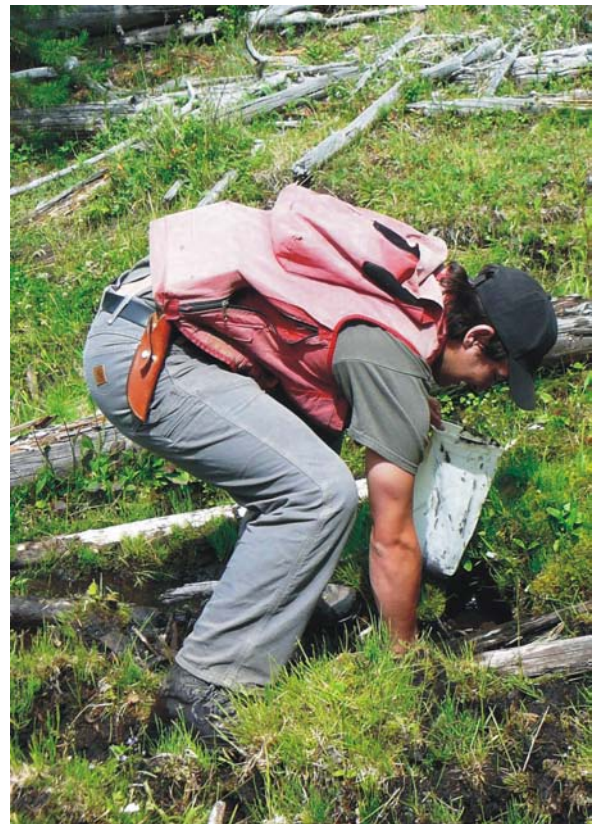


Figure 4.13. Geoscience BC contract field staff were busy in 2009 collecting over 1000 new stream sediment samples for the Quest South project. The BC interior can be challenging with its arid conditions as shown here.

TABLE 4.2. MAJOR EXPLORATION PROJECTS, SOUTH-CENTRAL REGION, 2009.

Property	Operator	MINFILE	Commodity	Deposit Type	Work Program
Ajax	Abacus Mining and Exploration Corp	092INE012, 013, 028, 030	Cu, Au, Ag, Pd	Porphyry	PFS, DD
Blackdome	J-Pacific Gold Inc.	092O 053, 051, 052	Au, Ag	Vein / Breccia	PFS
Blue River Ta/Nb	Commerce Resources Corp.	083D 005, 035	Ta, Nb	Magmatic	DD (5586), MS, PFS, G
Bralorne	Bralorne Gold Mines Ltd.	092JNE164, 001	Au, Ag	Vein / Breccia	UG, DD (4200 m), G, PFS
Elizabeth	J-Pacific Gold Inc.	092O 012	Au, Ag, Cu, Mo	Vein / Breccia	PFS
Elk	Almaden Minerals Ltd.	092HNE096	Au, Ag	Vein / Breccia	MS, PFS
Flap	Molycor Gold Corp. / Goldrea Resources Corp	082LSW119	Au, Ag	Vein / Breccia	DD (~2000 m)
Iron Mist	American Creek Resources Ltd.	092P 178, 179	Fe	Skarn	DD (673 m), G
Harper Creek	Yellowhead Mining Inc.	082M 008, 009	Cu, Ag, Au, Zn, Mo	Massive Sulphide	G, PFS, EN
Lac La Hache	GWR Resources Inc.	092P 001, 002, 034, 035	Cu, Au	Porphyry	DD (3620 m), GC, G
Moore	Almo Capital Corp.	082M 051	Cu, Pb, Zn, Ag, Mo	Massive Sulphide	DD (~1500 m)
Panorama Ridge	Goldcliff Resource Corp.	082ESW052, 259	Au	Skarn	GC, P
Prosperity	Taseko Mines Ltd.	092O 041	Cu, Mo, Au	Porphyry	GD, FS
Rateria	Happy Creek Minerals Ltd.	092ISE092 150, 060	Cu, Mo	Porphyry	G, P, GC, DD (~2000 m)
Ruddock Creek	Selkirk Metals Corp. / Imperial Metals	082M 082, 083	Zn, Pb, Ag	Massive Sulphide	PFS, GP, G, GC
Spanish Creek	Skygold Ventures Ltd.		Au	Vein / Breccia	DD (3043 m), GP-AB
Treasure Mountain	Huldra Silver Inc.	092HSW016, 018	Ag, Pb, Zn	Vein / Breccia	PFS
Bonaparte Gold	Encore Renaissance Resources Corp	092P 050	Au	Vein / Breccia	UG, BS
Miner Mountain	Sego Resources Inc	092HSE078, 203	Cu, Au, Ag	Porphyry	GP-IP, TR

TABLE 4.2 (continued from previous page)

Property	Operator	MINFILE	Commodity	Deposit Type	Work Program
Tas	Supreme Resources Ltd.	092HSE193, 192	Cu	Porphyry	GP-IP, DD (~1500 m)
Logan Copper (Dab)	SNL Enterprises Ltd.	092ISE012, 190	Cu, Mo, Ag	Porphyry	DD (~2000 m)
Yalakom	Barrick Gold Corporation	092O046	Cu, Au, Mo, Ag	Porphyry	DD (~3500 m), G, GC
Windpass	Molycor Gold Corp	092P 039	Au, Ag, Cu	Vein / Breccia	DD (~2000 m), TR (746 m)
Newton Mountain	Amarc Resources Ltd	092O050	Au, Cu	Porphyry	DD (~2500 m)
Waverley/Tangier	Armadillo Resources Ltd	082N 014, 015	Pb, Ag, Au, Zn, Cu	Massive Sulphide	DD (762 m), GP:MG, GP:EM

Work Program Abbreviations:

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; OP-BU = open-pit bulk sample; P = prospecting; PD = percussion drilling; PF = pre-feasibility studies; PP = Pilot plant, R = reclamation; RC = reverse circulateon drilling; TR = trenching, UG (X m) = X metres of underground development; UG-BU = underground bulk sample; UT = UTEM; VLF; WT = washability test (coal)

The British Columbia Geological Survey (BCGS) has completed several programs in the south-central region in recent years. West of Williams Lake, Mitch Mihalynuk and his crew completed regional mapping in the Puntzi Lake area in 2008. They discovered that the areal extent of Chilcotin flood basalts is actually small and that there were far more Mesozoic volcanic and igneous rocks exposed in the area than previously known. This heightens the potential for various styles of mineralization, particularly in relation to the mid to late Jurassic Chilanko igneous complex. In the same region, results from a till sampling and surficial mapping program have been released by Travis Ferbey. Gold grain counts and determinations for arsenic and antimony suggest there is potential for gold mineralization in the Redstone map area and to the west. The source for elevated copper, nickel, chromium and mercury values in a group of adjacent samples, in the same map area, is unknown. Nickel and chromium values could be related to an unmapped mafic or ultramafic unit or perhaps mantle xenoliths within locally occurring Chilcotin Group flood basalts while coincident elevated copper and mercury values are perhaps more likely related to a mineralized system and (or) bedrock structure(s). These data, in combination with results from the regional bedrock mapping completed in the Puntzi Lake area, suggest this region of the southern Interior Plateau is deserving of more detailed follow-up work.

Nick Massey continues his fieldwork in the western Nicola Group in the Princeton area. Near the contact with

the Eagle Creek pluton, the rocks are highly metamorphosed and deformed in contrast with the typically lower metamorphic grades seen in rocks elsewhere in the Group. The felsic character of some of the rock units compounds interest in the rocks and suggests potential for volcanogenic mineralization. The BCGS is supporting Shelley Oliver at the University of British Columbia who is completing graduate studies on the structural and metamorphic history of the rocks to test that they are correctly mapped as part of the Nicola Group. Nearby at the Copper Mountain project, Mitch Mihalynuk and Jim Logan have attained accurate radiometric age dates from Rich Friedman at UBC that show that arc volcanism, intrusion and mineralization at the deposit were clearly contemporaneous. This gives a deserved nod to the careful field observations of Vic Preto who contended this in his groundbreaking work on the rocks from 1965-72.

Larry Diakow has completed a second season of field research within mid-Cretaceous rocks of the Spences Bridge Group in an area southwest of Merritt. New U-Pb isotopic dates ranging from 102 to 106 show calc-alkaline rocks of the Spences Bridge Group are Albian in age, and potassic vein alteration at the Prospect Valley prospect also yielded an Ar-Ar date of 104 Ma indicating the synchronicity of epithermal gold-quartz vein formation and Spences Bridge Group magmatism. He also completed a week of field research related to the Nicola Group located just to the east.

PORPHYRY PROJECTS

Thompson Rivers and Shuswap Lake

Abacus Mining and Exploration Corp. has completed a preliminary economic assessment of the **Ajax** copper-gold porphyry deposit near Kamloops which encompasses the former producing Ajax pits of the Afton mine (Figure 4.14). The study contemplates a 60 000 tonne-per-day operation exploiting the measured and indicated resource of 442 Mt at 0.30% Cu and 0.19 g/t Au. The company has completed an earn in agreement with New Gold Inc over the surrounding claims to its wholly owned tenures giving it the ability to pursue a feasibility study and further financing for the project. Late season drilling began in an area southeast of the Ajax East pit where the target is near surface higher value mineralization suitable for development as a starter pit. Called the Ajax East extension (previously the Monte Carlo), the zone is thought to be a fault displaced portion of the Ajax East pit.

Several other properties around the Iron Mask Batholith saw minor amounts of work this year. Partners Gold Mask Ventures Ltd and Morgan Gold and Minerals Corp undertook minor trenching and target prioritization at their **GM** property west of the Ajax project. At the **Galaxy** property of Discovery-Corp Enterprises Inc, the company requisitioned a 3-D model of the Galaxy deposit to aid in determining future exploration priorities. North of Kamloops Lake at the **Copper Creek** property of Christopher James Gold Corp, the company evaluated targets based on a recently flown airborne geophysical survey.

Mine site exploration occurred during the year at the **Highland Valley Copper** mine, which is centered in the Guichon Creek Batholith, where Teck drilled in support of the expansion plans at the mine. Work was undertaken at the upper west wall of the Valley pit where a push back is underway as part of the 2019 mine plan.

Happy Creek Minerals Ltd was back drilling at the **Rateria** porphyry copper-molybdenum property, strategically located about 12 km southeast of the Highland Valley mine. Last year the company reported very positive results from drilling at Zone 2 (incorrectly reported in last year's summary as Zone "A"). This year they followed up with three holes that have expanded the zone to over 450 m. Four widely spaced reconnaissance holes tested a large geological corridor to the southwest of Zone 2 and are reported to contain favorable fracturing and alteration with a minor amount of copper sulfides. A new target called the "High-Res" was drilled this year with a single hole and copper sulfides as well as native copper are reported to have been intersected. Results for this year's drilling are pending. The company also explored the **West Valley** property where two grab samples taken this season have defined a new discovery called the NTP zone. The samples were taken 65 m apart



Figure 4.14. Bob Friesen of Abacus Mining and Exploration Corp explaining the geology of the Ajax pits to a group representing the Japan Oil, Gas and Metals National Corporation and other companies with interests in the BC mining industry.

and returned 1.7% Cu plus 0.37 g/t Au and 1.4% Cu plus 0.07 g/t Au.

Just north of the Highland Valley mine, Getty Copper Inc received a positive pre-feasibility engineering study for the **Getty North** and **Getty South** porphyry copper deposits. The study contemplates a 15 000 tonne-per-day operation that would produce cathode copper and molybdenum trioxide over a period of 17 years. The two deposits are reported to contain an indicated resource of 86.6 Mt of 0.4% copper and inferred resource of 22.1 Mt of 0.35% Cu. Molybdenum resources are reported only for the Getty North deposit which contains 0.005% Mo in both resource classifications.

Further south in the Guichon Batholith, Dot Resources Ltd announced it had completed a resource calculation at the **Dot** property, which contains the former producing Aberdeen Mine and Vimy showing. The total resources for the property include an indicated resource of 4.47 Mt of 0.42% Cu, 0.01% Mo, 2.9 g/t Ag and 0.04 g/t Au and an inferred resource of 2.39 Mt of 0.4% Cu, 2.9 g/t Ag and 0.03 g/t Au, both at a 0.2% Cu cut-off. The indicated resource was entirely sourced from the Southeast zone whereas the inferred resource was accumulated from the Southeast, Copper and the East zones. The Northwest zone did not contribute to the current resource estimate. The company announced it was proceeding with further IP geophysical surveys and drilling in 2009. The company has yet to drill to test evidence that the southeast and northwest zones are in fact a singular horizon.

SNL Enterprises Ltd drilled at the **Logan Copper** project located 6 km east of the Highland Valley Copper mine again this year. The property is reported to cover the Bethsaida phases of the Guichon Batholith. Results from last year's drilling at the Dansey property produced some long intersections from the North zone such as hole 08-SND-02 which intersected 153 m of 0.15% Cu and hole 08-SND-04 which intersected 167 m of 0.10% Cu.

In both holes, mineralization was within 8 m of the top of the hole.

This year's work was focused again at the North zone where five holes were completed, and at the Midway showing – a target generated by MMI soil surveying, follow up prospecting and mapping – three holes were drilled. Early results from the North zone included intersections that ranged from 0.65 to 8.36 m and graded from 0.20 to 0.30% Cu. Results from the remainder of the North zone drilling at the “Blue” showing and at the “Midway” showing, located 1300 m to the south-southwest, are pending. Of noteworthiness is the company's reporting of numerous new showings in this mature exploration district. Although heavily explored, the company has won discoveries such as the Blue, Midway and Cliff showings, to name a few, with a combination of MMI soil sampling, prospecting and mapping.

Newmac Resources Inc carried out a drill program of three holes at the **Crazy Fox (Anticlimax)** porphyry molybdenum-tungsten property north of Little Fort where drilling since the 2007 breakthrough hole has extended mineralization over 800 m to the south from where it was first encountered. This year's target was defined by a geochemical anomaly, geophysical evidence and abundant granitic float; however, the program did not intercept the intrusive rock in the area and the anomaly remains unexplained. The company completed more ground magnetometer work at the **Moira** property located northwest of Clearwater in search of similar styles of mineralization.

West of Little Fort, Candorado Operating Company Ltd released results from last year's drilling at the **Deer Lake** property where the company is searching for skarn and porphyry copper-gold mineralization. At the Road showing encouraging results included hole DL08-02 which had a near surface intercept of 96.2 m of 0.1% Cu and 0.33 g/t Au while at the Lightning zone the best intersection was 62.4 m of 0.36 g/t Au and minor Cu. Further planned drilling had not started yet at the time of writing. Nearby, Christopher James Gold Corp completed further geological and geochemical studies and trenching and its suite of properties in this region. Several deposit styles are being pursued within Nicola Group volcanic rocks especially skarn mineralization similar to Candorado's property to the south.

South Cariboo-Chilcotin Plateau

The **Prosperity** gold-copper porphyry deposit of Taseko Mines Ltd continues in the provincial and federal environmental assessment process. Recommendations from those processes are expected in early 2010. The company restated its proven and probable reserves in November to now include a markedly larger 831 Mt at 0.23% Cu and 0.41 g/t Au. This reportedly represents an increase of almost 70% from its previously stated reserves and makes it one of the largest undeveloped deposits in

the country. At the site the company undertook studies around geotechnical issues related to mine design.

Amarc Resources Ltd optioned the **Newton Mountain property** located approximately 40 km north of the Prosperity deposit where they drilled fourteen holes. This property has been idle since some very promising drill results were released in 2006 by a previous operator, such as 2.33 g/t Au and 0.15% Cu over 49 m in hole DDH 06-12 and 0.51 g/t Au over 97 m found in hole DDH 06-03. Although classically explored as a porphyry copper-gold target, the current focus is on epithermal bulk tonnage-style mineralization. Drilling was completed in late November and early reports reveal that a significant discovery has been made. Vertical hole 9004 cut 189 m of mineralization that graded 1.56 g/t Au, 7.9 g/t Ag, 0.08% Cu and 0.17% Zn starting at a core depth of 6 m. Long intersections of mineralization are reported in other results released to date and several holes are yet to be reported on at the time of writing. The company states the style of alteration and mineralization at the property appears to be transitional from typical copper-gold porphyry to an epithermal-type gold deposit.

At the **Taseko Lake** porphyry copper, gold and molybdenum property, located 15 km south of the Prosperity project, Galore Resources Inc is retaining its interest in this highly prospective region. This year saw the company complete two holes at the Hub property in an effort to extend known mineralization at a priority target defined by a very large airborne magnetic anomaly. Last year's drilling indicated a strong, quartz-sulphide stockwork hosted in altered, multi-phase intrusive and volcanic rocks. The best hole into this zone was 08TSK-06 which was mineralized over its entire 305 m length and returned 294 m of 0.14% Cu and 0.01% Mo.

At the **Lac La Hache** porphyry copper-gold property, GWR Resources Inc drilled the Aurizon South zone after re-logging previous years' core and geophysical and geochemical information yielded new exploration targets. Seven holes were completed to confirm a new exploration model that predicts a westerly, down section displacement of highly mineralized, hydrothermally altered monzonites as intersected in hole AZS08-07 which yielded 26 m of 0.86% Cu and 6.26 g/t Au. Partial results have been released to date, which shows success with the program, with deep intersections such as AZS09-12 cutting 18 m of 0.62% Cu and 1.2 g/t Au. Given an improved understanding of the environment that hosts copper-gold mineralization, the company plans further drilling aimed at shallower intersections in untested areas. The company also continues to determine additional targets on this large property with ongoing geological mapping and MMI soil sampling.

Happy Creek Minerals Ltd continued to evaluate the extensive and prospective holdings it has in the Boss Mountain area northeast of Lac La Hache. The company conducted grassroots level work at the **Fox** tungsten-molybdenum skarn as well as at the **Silverboss** and **Hen**

properties where gold-copper and molybdenum porphyry mineralized systems are the target.

Gold Bridge-Bralorne-Lillooet

Barrick Gold Corporation was active at the **Yalakom** project northwest of Lillooet. It is the first program at the property in numerous years. The objective of this year's program was to upgrade the geological understanding on the Poison Mountain deposit and analytical results from previous work. The company completed a drill program as well as geological and geochemical work.

Mineralization at Poison Mountain is associated with two granodiorite to quartz diorite stocks (the Main and North porphyries) which intrude sedimentary rocks of the Lower Cretaceous Jackass Mountain Group. Mineralization consists mainly of pyrite, chalcopyrite, molybdenite and bornite, which occur as disseminations and fracture-fillings and in veins associated with quartz. Historical resources at the Copper Creek zone include indicated resources of 280 Mt grading 0.26% Cu, 0.14 g/t Au, 0.007% Mo and 0.514 g/t Ag. The Fenton Creek zone contains inferred resources of 18.3 Mt grading 0.31% Cu and 0.128 g/t Au.

Cresval Capital Corp undertook grassroots exploration at its **Bridge River Copper** project, located 40 km west-northwest of Goldbridge. The property contains the Nichol, Russnor and BR showings which are calc-alkaline porphyry copper-molybdenum-gold targets within the Bridge River Pluton.

Similkameen River

At the **Copper Mountain** project most of the corporate efforts were focused on mine development as discussed above and little exploration was undertaken beyond some detailed geological mapping and petrographic work. Summary results from the 63 126 m of drilling in 2008 were released early in the year and highlight significant potential for pit expansion northwest and southeast of the currently outlined super pit: these are the Copper King and Oriole zones respectively. Drillhole CM08P2-151 is the most north-westerly hole in the Copper King zone completed in this campaign and it intersected 85 m of 0.36% Cu with minor gold and silver. Within the Oriole zone previously released results are showing potential for a high-grade zone that may provide valuable mill feed at the start up of the operation. Drilling is forecast to resume again in 2010.

Supreme Resources Ltd completed a Quantec Titan-24 induced polarization survey at its **Tas** property located south and east of the Copper Mountain project. Buoyed by the results of the survey the company has initiated a drill program at the property.

Approximately 5 km south of the Copper Mountain project, Anglo-Canadian Uranium Corp has expanded its tenure holdings at the **Princeton Copper** project in light of the renewed activity in the region. The company has

been active for several years in the region drilling the Friday property and Reco (Rico) zone. This year the company hand trenched and sampled several areas to determine further exploration plans.

Sego Resources Inc was active at its **Miner Mountain** property located just 4 km to the northeast of Princeton. Mineralization is generally hosted within microdiorite of the Nicola Group and there may be a genetic link to Deer Valley Fault to the west which juxtaposes these volcanic rocks with sedimentary rocks of the Eocene Princeton Group. The company completed a deep penetrating Quantec Titan-24 induced polarization and resistivity survey early in the year which provided upwards of 23 targets for further exploration (Figure 4.15). One of the target areas is near the surface around the South zone where previous trenching has shown higher gold grades: this formed the focus of much of the trenching completed this year. The company has reported expansions of the South zone with results such as 16 m of 0.34 g/t Au and 0.32 g/t Ag in Trench 88 (including 31.47 g/t Au and 27.2 g/t Ag over 1 m). Trench 87 extended southeast from last year's successful Trench 36 and yielded 26 m of 0.28g/t Au and 0.51 g/t Ag. The company has a signed Memorandum of Understanding with the Upper Similkameen Indian Band who is providing the company with excellent contract services. This led to a joint receipt of an award for best exploration reclamation in 2008 from the Technical and Research Committee on Reclamation.

East of Kentucky Lake and north of Princeton, Victory Resources Corporation expanded its holdings around the Toe & Wen properties and renamed the property the **Toni**. Last year the company drilled the property in search of gold-copper mineralization in both mesothermal quartz veins and a porphyry environment. Christopher James Gold Corp completed mapping this year to better understand geological structure and evaluate potential targets at its **Big Kidd** property located near Aspen Grove.



Figure 4.15. A Quantec Titan-25 deep penetrating IP survey set up at the Miner Mountain project just north of Princeton (photo courtesy of Sego Resources Inc).

Okanagan

Jasper Mining Corp has been very active at its **Isintok** molybdenum-copper-silver project in recent years. Located southwest of Summerland the property has seen previous work by Anaconda Canada Exploration Ltd and Canex Aerial Exploration Ltd who delineated a historical near-surface resource of 23 Mt of 0.161% Cu and 0.04% Mo. The near-surface nature of the mineralization has meant the company has been highly successful in drilling coincident IP and soil survey anomalies. Early this year, the company released some impressive long intersections such as hole IS-08-50 which intersected 392 m of 0.09% Cu, 0.01% Mo with minor gold and silver and IS-08-26 which intersected 271 m of a similar grade. The company has yet to analyze core from last year's drilling program that it plans on completing this winter.

Partners Molycor Gold Corp and Goldrea Resources Corp released a resource estimate for the **Empress** property west of Summerland and 15 km south of the former Brenda Mine. Last year, a nineteen hole drill program tested molybdenite-pyrite-chalcopyrite mineralization found as disseminations, veinlets and quartz stringers within porphyritic quartz monzonite rocks of the Middle Jurassic Osprey Lake batholith. The near surface location of much of the mineralized resource provides encouragement for exploitation from an open pit. The company reports an indicated resource of 1.70 Mt of 0.095% Mo and inferred resource of 1.66 Mt of 0.095% Mo based on a cut-off of 0.05% Mo priced at US\$10 per pound.

SKARN PROJECTS

Thompson Rivers and Shuswap Lake

American Creek Resources Ltd drilled its **Iron Mist** property located 60 km north of Kamloops. At the property the company is evaluating the iron content of what appears to be a magnetite skarn at the contact of a gabbro-diorite intrusion and metamorphosed sedimentary rocks of the Harper Ranch formation. Magnetite mineralization is found as seams and pods with some of the larger zones measuring 1 m in width and up to 15 m in length. The company reported last year that grab samples ran from 43.5% to 61.7% Fe and 0.32% to 0.4% V. Early reports indicate the company was successful in intercepting magnetite-rich zones in all seven holes completed.

Okanagan

Goldcliff Resources Corp got a late start at the **Panorama Ridge** gold skarn project a few km east of the historic Nickel Plate gold mine at Hedley. The company began shipping large quantities of 2008 drill core samples

during the summer after a timely August financing. It also received the final interpretation of a fall 2008 airborne geophysical survey that has defined new targets both at the project and at a regional scale. The company reports a regional scale, northeast trending structure is indicated in the survey that it believes is fundamentally related to gold mineralization at the Panorama Ridge property as well as the greater Nickel Plate camp. Conceptually, the major structure and cross-cutting structures would serve as conduits for mineralizing fluids, synthesizing many of the deposits in the region into a more singular genetic model. Detailed stream sediment surveying was completed this year and, given the new model for the region, the company is expected to give its new targets a high priority for ground follow-up trenching and drilling.

At the **Gold Hill** project near Hedley, Vega Gold Ltd, completed a trenching and mapping program at the property. Work was focused at the Snowstorm, Junction and Hed showings.

Columbia River

On the south flank of Frenchman Cap Dome, Torch River Resources Ltd reported on last year's drilling at the **Mount Copeland** high-grade molybdenum skarn project. The property is a past producer that was active briefly as an underground operation between 1970 and 1973. Mineralization consists of disseminated, massive and stockwork-hosted molybdenite within pegmatite and aplite along a boundary of an extensive nepheline syenite body. The modest program produced some short intervals of higher grade mineralization ranging from 0.3 to 2.7 m and grading between 0.14 to 0.53% Mo. The company didn't undertake field work this year but did reanalyze sections of nine of the 2008 holes for the presence of rare earth elements known to be hosted within nepheline syenite rocks in the region.

VEIN AND BRECCIA PROJECTS

Thompson Rivers and Shuswap Lake

Encore Renaissance Resources Corp has been permitted to remove high-graded quartz vein material from its **Bonaparte Gold** property located 35 km north of Kamloops. The property is underlain by sedimentary and volcanic rocks of the late Paleozoic Harper Ranch Group and intruded by Triassic and/or Jurassic granodiorite, quartz monzonite and diorite that are believed to form part of the Thuya batholith. Mineralization primarily occurs in a series of north trending quartz veins hosted mainly by quartz diorite intrusive rocks. Locally, the massive white quartz veins contain up to several per cent sulphides consisting of pyrite with lesser chalcopyrite, pyrrhotite and molybdenite. Native gold is also evident but generally is associated with silver-grey tellurides.

The objective is to ship the materials to the Kinross mill in Washington State, U.S.A., for processing and recovery of precious metals. There is not a stated resource for the material to be mined and the company is indicating it anticipates a similar grade to a bulk sample that was removed from the property in the 1990's. Current efforts are aimed at undercutting and mining the Jewelry Box vein (Figure 4.16).

Paramount Gold and Silver optioned the **Vidette Lake** property located 50 km north of Kamloops and up the Deadman River Valley. The company has completed some preliminary work on the property this season. Regionally the valley hosts the former Vidette Mine which produced gold, silver and copper between 1933 and 1940 from epithermal quartz veins hosted within volcanic rocks of the Upper Triassic Nicola Group.

Prospector Mo Kaufman had his **Jake** property returned to him in late 2008 after some concerted work had shown potential for a shear-hosted gold-bearing system defined by limited surface outcrops, previous drilling and a kilometre long geophysical signature. At the property, mineralization consists of quartz with pyrrhotite, chalcopyrite, pyrite and bismuthinite in veins and stringers hosted by sheared andesite tuffs of the Devonian to Permian Fennell Formation. Since there is a paucity of bedrock, induced polarization and magnetic geophysics has proven effective in highlighting targets, and more survey work was completed this year to extend previous anomalies. With undrilled targets left over from the previous program and new potential outlined in this year's work, the property should be attractive to companies looking for an early stage gold property.

Newmac Resources Inc undertook grassroots level exploration at the **Ace Gold** showing which is contiguous to its Crazy Fox property near Little Fort. Historic grab samples have been reported to assay from 10 to 27 g/t Au and minor historic drilling has occurred at the showing. Gold mineralization is associated with quartz-arsenopyrite veins hosted within argillites likely belonging to the Upper Triassic Nicola formation. The company has defined a gold-arsenic and gold-polymetallic-in-soil anomaly in a belt approximately 150 m wide and 1300 m long.

At the **Windpass** property, 8 km east of Little Fort, Molycor Gold Corp trenched and drilled this former producer which yielded 1 071 684 grams Au between 1932 and 1939 as well as 53 469 grams Ag and 78 906 kg of Cu (Figure 4.17). At the property a series of echelon mineralized quartz veins are hosted within the Devonian to Permian Fennell Formation of the Slide Mountain Group. Locally, the veins are typically hosted within a chlorite-altered diorite sill and mineralized with pyrite, chalcopyrite, bismuth sulphide, free gold, magnetite and tellurides. The presence of free gold was evident in a summer chip sample WP09-AR-07 which assayed a bonanza -grade of 316.5 g/t Au at the North



Figure 4.16. The start of a portal to exploit the Jewelry Box vein at the Bonaparte Gold property of Encore Renaissance Resources Corp north of Kamloops.



Figure 4.17. One of many lengthy trenches at Molycor Gold Corp's Windpass property near Little Fort.

zone over an unspecified interval. Preliminary drill results are reported as encouraging and indicate the potential for mineralization away from previously known zones. To date the best results are from holes WP09DDH5 and WP09DDH6 which intersected 1.52 m of 15.85 g/t Au and 0.61 m of 19.65 g/t Au respectively.

South Cariboo-Chilcotin Plateau

The **Blackdome** gold-silver mine and mill of J-Pacific Gold Inc is located northwest of Clinton and remains on care and maintenance. This underground mine operated in the 1980's 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 a historic inferred mineral resource of 124 120 t grading 12.8 g/t Au and 33.7 g/t silver. Nearby, the company also holds the Elizabeth property where bonanza-grade gold is hosted within northeast trending, steeply northwest dipping mesothermal veins that crosscut the Blue Creek diorite intrusion. The company did not undertake any field activities for the year but was active in characterizing the resources at the properties. At mid-year the results of a mineral resource evaluation at the **Elizabeth** property were announced where inferred resources were stated to be 522 900 t grading 12.3 g/t Au at a 5 g/t cut-off. The company has also announced it is proceeding with a preliminary economic assessment of both projects which contemplates underground mining of resources and transport of Elizabeth ore to the Blackdome mill for processing. This involves the review and updating of resources at the Blackdome mine to reflect modern reporting standards. Late in the year the company indicated it will change its name to Sona Resources Corp.

At the **Watson Bar** property north of Lillooet, Durfeld Geological Management Ltd prepared and shipped approximately 1000 t of high-grade gold-silver-bearing quartz veins to a custom mill familiar with such ore. Quartz-sulphide veins and carbonaceous shear zones are hosted within feldspathic and volcanic lithic arenites of the early Cretaceous Jackass Mountain Group (Figure 4.18a). The ore was mined by excavator (Figure 4.18b) and trucked directly from project (Figure 4.18c) to the custom milling facility. Early indications are that the expected grades were achieved making the effort a technical success.

Fraser River

Consolidated Spire Ventures was active at the **Prospect Valley** property located 30 km west of Merritt. Improved access to the property was completed in October 2008 and will allow more economical infill drilling in support of outlining a low-grade bulk-mineable target. Early in the year the company reported it has received results of bench tests that indicated that gold could be recovered utilizing heap leach methods with acceptable levels of recovery. Field work was completed at the NW Dome, a large magnetic low that is thought to be coincident to an area of strong hydrothermal alteration - a key to mineralization at the property. At mid-year the property was optioned to Altair Ventures Incorporated who started a very late field program in snow covered conditions.



Figure 4.18a. A close up of a gold-silver-bearing quartz sulphide vein at the Watson Bar property. Photos for Figures 4.18 a, b and c courtesy of Durfeld Geological Management Ltd.



Figure 4.18b. Excavating the vein material at the Watson Bar property.



Figure 4.18c. At the Watson Bar property. Loading the bulk sample into a haul truck in preparation for direct shipping to the custom mill.

Fairmont Resources Inc have taken an option on the **Nicoamen River** project this year and completed geological and geophysical surveys in anticipation of drilling.

Strongbow Exploration Inc returned to the **Shovelnose** property located 30 km south of Merritt where it completed a trenching and mapping program. The program was intended to expand upon recent successes at the Line 6 and Mik showings, where gold mineralization is reported to be epithermal-style and related to shallow to moderately west dipping colloform-banded quartz veins hosted within silicified and clay altered felsic volcanic rocks.

Gold Bridge-Bralorne-Lillooet

The most advanced project in the famous Gold Bridge mesothermal gold-quartz vein camp is at the **Bralorne** mine of Bralorne Gold Mines Ltd. It operated continuously from 1928 to 1971 and was the dominant contributor to approximately 4.15 million ounces of gold that has been produced at this camp. Infrastructure on the property includes extensive underground workings, a partially completed tailings pond and a 100 tonne per day gravity/flotation pilot mill.

The company was very active in 2009 primarily with work on the BK zone at the property in a concerted effort to harbor sufficient resources to resume mining. A winter drill program at the BK zone was finished in February and it successfully delineated extensions to the BK zone and the previously known, parallel, Alhambra veins. The program also discovered three new veins. The company reports that it invested a great deal of time early this year data mining, digitizing historical data and incorporating current data to create better spatial modeling of the various veins and zones: a process that it thinks has already shown significant potential along strike for the BK and Alhambra veins. A new 440 m decline was started on the Lorne block to intersect the BK vein at the 575 sub level, some 70 m above the successful 2008 program that drifted along the structure at the 800 level. Ground conditions have slowed the progress of the decline during the course of the year and to date the target has not been reached.

In June the company received a resource estimate for the property, which stated the measured resources to be 17 627 t at 16.24 g/t Au and inferred resources of 142 300 t at 14.98 g/t Au. The measured resources only incorporated the 51B FW "A" and BK veins, while numerous blocks could only be assigned to the inferred category. To upgrade these resources the company has started a new portal at the 400 level and will drive a decline 228 m to intercept and further test the 51B FW and Taylor veins.

A surface drill program began in October to further test the BK zone above the 800 level, parallel veins such as the Alhambra, the veins discovered in the winter program and other areas of the BK zone where modeling

indicates heightened potential. Early results appear positive with the best assay to date being an intersection of the BK vein that yielded 0.6 m of 43.51 g/t Au. Numerous other significant results are reported that range from 0.2 to 0.5 m in width and grades of 3.36 to 9.5 g/t Au. The company undertook successful financings this year and raised upwards of \$5 million to advance this project.

Covenant Resources Ltd completed an MMI survey on its **Piebiter** property located 6 km southeast and along strike from many of the structural zones of the Bralorne camp. The property hosts numerous recorded mineral occurrences and a large multi-element soil anomaly that remains untested.

On the south side of Carpenter Lake and 10 km northeast of the Bralorne Mine, Menika Mining Ltd released results from last year's drilling of the Carter and Imperial zones at the **Reliance** property. The property hosts high-grade gold-arsenic-antimony mineralized quartz-carbonate veins within shear zones. Accompanying the shear zones are felsic dikes suggestive of a possible genetic link to the regional Cretaceous intrusions that provide a temporal and spatial focus to mineralization in the camp. Several of the holes attempted to twin successful holes from previous drilling during the years 1987-1988. At the Imperial zone the best results were deep intersections of 44.6 m of 1.4 g/t Au in hole I08-0001 and 52.1 m of 1.4 g/t Au in hole I08-0002. The property still contains untested MMI gold-silver-arsenic-antimony-in-soil anomalies.

Supreme Resources Ltd released results from fall 2008 drilling at the **Ample-Goldmax** property located 9 km southwest of Lillooet. Previous work has defined Mother Lode-style mineralization with quartz-carbonate-arsenopyrite-gold veins within greenstones and phyllites along a regional-scale fault zone. Visible gold is not uncommon at the property and was reported in press releases as the program completed. Hole AG 08-37 twinned a former Homestake drillhole and largely confirmed previous mineralization in intersecting 7.1 m of 6.6 g/t Au. Holes AG 08-37 and AG 08-39 are reported as discovery holes for new mineralization with the best intercepts being 6.1 m of 4.2 g/t Au and 8.5 m of 5.9 g/t Au respectively. Hole AG 08-39 intercepted mineralization very close to the surface and follow-up hole AG 08-40 attempted to test the new zone, but poor recoveries hampered characterization of the zone: the hole did produce a 1.1 m interval of 10.7 g/t Au.

Okanagan

Almaden Minerals Ltd continues to evaluate the **Elk** mesothermal gold-quartz vein project 45 km southeast of Merritt, and just 2 km south of Highway 97. In the 1990s, 1.6 million grams of gold were produced from 16 700 t of ore extracted from the B vein system in open pit and underground operations. The company has generated a new geological model for the deposit and incorporated

2007 drilling into a new resource estimate for the property. Both the B and WD veins are now better characterized as eight and four separate vein zones respectively which the company reports better represents the geology of the system. The company has reported cut-off grades at 1 g/t Au for a conceptual open pit shell and 5 g/t for underground resources. This has led to the global measured and indicated resources at the property to be 920 000 t at 8.4 g/t Au and inferred resources of 780 000 t at 11.0 g/t Au. The company is undertaking further scoping studies in support of advancing the project through to the resumption of mining. The company owns mill equipment which is being stored near the project which may aid in future developments.

Just 1100 m to the north of the former Brenda Mine and near Peachland, Bitterroot Resources Ltd was active on the **North Brenda** property where the company has most recently explored for porphyry copper-molybdenum mineralization. The company trenched gold and silver-in-soil anomalies in the vicinity of a linear magnetic low, thought to represent a structural feature. Trench TR09-01A uncovered a 0.3 m zone of fault gouge, quartz veins and pyrite that assayed 71.4 g/t Au and 24.4 g/t Ag. Some high-graded samples of vein material in this zone have assayed up to 187.5 g/t Au and 71.8 g/t Ag. The mineralized structure has been traced for 170 m and is thought to be geologically similar to the Elk property which lies 20 km to the southwest. Additional soil and geophysical sampling was undertaken in other prospective areas of the property. The company has signed a Memorandum of Understanding with the Westbank First Nation in support of establishing a positive long-term relationship founded on respect, consultation and accommodation of the Nation's Aboriginal rights.

Partners Molycor Gold Corp and Goldrea Resources Corp drilled the **Flap** gold project located 45 km northwest of Kelowna. Previous work on the property in the late 1980's yielded erratic grades of gold mineralization within a quartz stockwork hosted in agglomerates and tuffs of the Devonian to Triassic Harper Ranch Group. Some of the best previous results reported include up to 77 g/t Au over 1 m in drilling and up to 26 g/t Au from surface chip samples. The company hopes that the use of large diameter reverse circulation drilling will reduce some of the nugget effect that seems to accompany the mineralization at the property. Results for the program are pending as the program started late in the season.

Similkameen River

Southwest of the village of Tulameen, along the Tulameen River, Huldra Silver Inc is proposing a small mine at the **Treasure Mountain** vein silver-lead-zinc project. The company has made an application for a small mine permit based on a conceptual underground mine plan of 135 t per day, operating on a seasonal basis and on-site gravity concentration.

West of Princeton, Fox Resources Ltd has optioned the **Otter** property where it has completed more grassroots work at several areas where epithermal-style gold mineralization within the southern reaches of the Spences Bridge Group rocks is targeted.

SEDIMENT-HOSTED GOLD PROJECTS

South Cariboo-Chilcotin Plateau

Skygold Ventures Ltd drilled the **Spanish Creek** property again this year as part of its search for gold in similar geological settings to its flagship Spanish Mountain property. Located northeast of Canim Lake, the company has been essentially blind drilling within a 1500 m by 800 m wide gold-in-soil anomaly. With almost no outcrop to work with the company will also complete an airborne geophysical survey to help delineate and interpret targets. Late 2008 drilling at the Thunder Ridge zone yielded 45.49 g/t Au over 2.5 m in hole SC-005 and follow-up drilling this year has some equally encouraging results to date including hole SC-017 which intersected 8.84 g/t Au over 7.5 m and included a high grade interval of 39.5 g/t Au over 1.5 m. The company reports the gold mineralization is being encountered in various settings including quartz veins, structurally controlled environments and as disseminations in black shale sequences. The occurrence of gold mineralization in sediments found at this property is not well explained by existing British Columbia deposit models and remains in its own category, currently named "sediment-hosted gold" by the founding company.

Nearby, Happy Creek Minerals Ltd undertook grassroots level work at its **Art-DL** property where the underlying geology is similar to the Thunder Ridge zone and positive gold values are found in soil and silt samples over a 1.5 km trend. Historical workings at the property are reported to have returned assays up to 42.9 g/t Au.

MASSIVE SULPHIDE PROJECTS

Thompson Rivers and Shuswap Lake

Selkirk Metals Corp advanced its **Ruddock Creek** project located within the Script Ranges about 100 km north of Revelstoke starting with a late 2008 introduction of the project to the British Columbia Environmental Assessment process where it remains at an idle stage of review. At mid-year, and after several years of aggressive drilling of the E zone, the company released an updated indicated resource of 2.3 Mt of 7.8% Zn and 1.6% Pb and an inferred resource of 1.5 Mt of 6.5% Zn and 1.3% Pb, both at a cut-off of 4% combined Pb plus Zn. Whilst E zone resources will guide further evaluation of the deposit, they represent only a portion of the eight known

mineralized zones, most of which have not received sufficient drilling for resource estimation. This year's field work consisted of surface geophysics, geological and geochemical surveys. In July, the company announced it was merging with Imperial Metals Corporation, which was completed in November and Selkirk Metals is now delisted.

At the **Harper Creek** copper project located 10 km southwest of Vavenby, a private company Yellowhead Mining Inc has outlined an extensive volcanogenic sulphide system with an indicated resource of 538.4 Mt of 0.32% Cu at a 0.2% cut-off. The deposit is comprised of tabular shaped zones of volcanogenic sulphide mineralization hosted within highly deformed Late Devonian metavolcanic rocks of the Eagle Bay Assemblage. This year the company undertook office-based studies aimed organizing data and characterizing the deposit as well as gathering environmental baseline data in preparation for a feasibility study. The project is currently on hold in the British Columbia Environmental Assessment process.

Several other projects were active in the Adams Plateau with most exploring for volcanogenic massive sulphide mineralization within the highly prospective Eagle Bay Assemblage. On the **Moore** property near East Barriere Lake, Almo Capital Corp completed eight drillholes in search of mineralization within metamorphosed andesite and felsic volcanic rocks of the Eagle Bay Assemblage. Southeast of Barriere, Bitterroot Resources Ltd advanced its **SPN** project with further geochemical sampling and a gravity geophysical survey.

The richness of the Adams Plateau has attracted many prospectors who collectively control some very prospective land positions. Tom Robinson has been active on his **Midday** property east of Adams Lake and discovered mineralization at the Longspur showing where sample 9.Sr.R.6 assayed 9.6% Zn, 1.1% Pb, 0.14% Cu, 42.6 g/t Ag and 0.35 g/t Au (Figure 4.19). He has found numerous float samples elsewhere on the property that are not far travelled and contain similar levels of mineralization. Dave Piggin continues to advance his large holdings at the **Honeymoon** property west of Adams Lake and north of the former Samatosum mine, where the Mal 001 (copper-silver) and Spapilem (gold) showings provide hints to the potential of the region (Figure 4.20). Partners Tom McDonald and Alfie McKay continue to find elevated gold, copper and zinc levels at the Hammer zone on their **Stellar** property near North Barriere Lake. Just east of the former Samatosum Mine and near Adams Lake, Cleve Lowrey is exploring the **Poet** claims where stratabound, high-grade, zinc-bearing veins are hosted within silicified marble of the Eagle Bay Assemblage.

Columbia River

International Bethlehem Mining Corporation, through a wholly owned subsidiary, owns the **Goldstream**



Figure 4.19. An exciting high-grade zinc-lead-copper-silver-gold boulder from the Longspur showing arrives at the Ministry office. The showing is on the Midday property of prospector Tom Robinson and located east of Adams Lake.

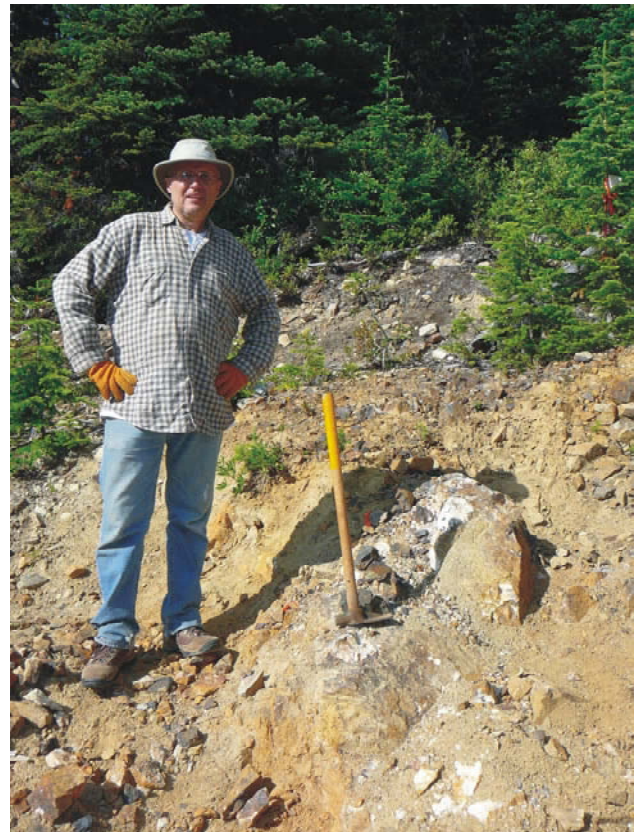


Figure 4.20. Dave Piggin stands deservedly proud on the discovery showing at the Spapilem gold showing at his property west of Adams Lake.

copper-zinc mine-mill complex north of Revelstoke, which lies in the heart of this highly mineralized region. The Columbia River region is best known for its stratiform base-metal deposits hosted in cover sequences of the Monashee Complex. With a 1360 dry metric tonnes per day capacity, this custom mineral processing

plant is permitted to custom mill off-site ore feed. The company continues to evaluate re-processing mill tailings as well as reviewing other potential regional deposit opportunities in an effort to secure longer term production and re-start the mill.

Work at the **J&L** property of Merit Mining Corp, located 45 km north of Revelstoke, remains on hold as the company attempts to restructure its debt. At the property, the Main and Yellowjacket zones of silver-lead-zinc stratiform mineralization are hosted by highly deformed metasedimentary rocks of the Proterozoic-Paleozoic Hamill Group.

Armadillo Resources Ltd completed an eight hole program this year at the **Waverley-Tangier** property located 56 km northeast of Revelstoke. A deformed package of Lower Cambrian schist, phyllite, quartzite and marble, host replacement mineralization composed of calcite, minor quartz and a fine-grained mixture of pyrite, jamesonite, galena, sphalerite and minor amounts of tetrahedrite. Some underground work was completed in the late 19th century but most of the workings are reportedly caved in or reclaimed. With the late season finish, assay results are not yet reported.

MAGMATIC PROJECTS

Thompson Rivers and Shuswap Lake

At the **Blue River** tantalum and niobium project, Commerce Resources Corp spent the year infilling geological and mineralogical gaps after a substantial 2008 program that saw over 26 000 m of drilling and collection of a 2000 t bulk sample. The property is 30 km north of Blue River and well located near infrastructure. A new resource estimate was reported for the Upper Fir carbonatite which gave an indicated resource of 11.31 Mt at 198 g/t Ta₂O₅ and 1 170 g/t Nb₂O₅ and inferred resource of 26.24 Mt of 194 g/t Ta₂O₅ and 1182 g/t Nb₂O₅ at a 150 g/t Ta₂O₅ cut-off. At the Upper Fir carbonatite, 22 holes were drilled, and another resource update is anticipated reflecting this year's work. The company reports it is progressing on a preliminary economic evaluation and undertaking further engineering investigations and metallurgical test work.

Similkameen River

Near Tulameen, a private company, Magnetite Ridge Metals & Mining Ltd, continues to attract attention at its **Magnetite Ridge** property. The company is seeking partners to evaluate its magnetite resources for potential use as iron smelter feed and as a coal cleaning medium.

South Cariboo-Chilcotin Plateau

Cobre Exploration Ltd was active at the **Iron Lake** property near Canim Lake and northeast of Lac La Hache.

The property covers mafic through ultramafic phases of intrusive rock related to the Triassic to Jurassic Takomkane batholith. The area features a prominent magnetic high which measures 5 by 7 km in size, much of which is unexplored to date. Previous work at the property discovered mineralized olivine-pyroxenite boulders that graded between 0.50 to 0.75% Cu, 0.40 to 0.75 g/t Au and 0.30 to 0.60 g/t PGEs. Several large copper-platinum-palladium-in-soil anomalies have been outlined in this area and were trenched this year in search of bedrock.

OUTLOOK FOR 2010

In the south-central region of BC, opening a mine within a mature mining district has a lot of advantages with regard to permitting and capitalizing on existing infrastructure. This is the obvious story for the New Afton and Copper Mountain projects, both former mines with significant histories yet bright futures. These projects are expected to continue to attract explorationists to this region and this style of deposit: especially since their gold-rich character complements what is expected to be a lengthy period of heightened precious metals prices.

The Highland Valley mine has shown itself to be a solid producer during the recent period of volatile commodity prices and economic instability. Expansion plans underway prove that the company is confident that the mine will anchor their future for some time – not too many years ago it was thought that the mine would cease operations in 2009. This stability will spur on other regional plays that may provide additional resources to the mine or as stand-alone ventures.

Projects with non-porphyry gold resources such as higher-grade veins or near-surface bulk-mineable targets should continue to be attractive since the high precious metal prices have created a wide spectrum of opportunity. Companies will be quick to complete economic studies of their deposits, but modeling must accommodate volatility of precious metal prices to avoid becoming a “swing” producer as the markets respond to the complicated dynamics of supply and demand. Smaller deposits that can be easily exploited and directly shipped to custom mills for short term but high cash flow to the operator will be in vogue as is already seen in a few examples.

Projects exploring for volcanogenic-hosted zinc, lead and copper seem to have been more affected by the economic downturn than other deposit types. The prices for those metals have increased through the year, and perhaps a rebounding automotive or galvanized steel industry will help zinc in particular. If a movement to galvanized reinforcing steel for concrete structures takes a foothold in Asia, as is being contemplated, this could have significant implications for this region's zinc projects. With a smelter in the province, and the overall high value of multi-commodity deposits, these should be attractive targets to the industry.



Figure 4.21. Stk'emlupsemc Enterprises Inc employee Jo-Anne Mosterd at a kekuli (winter pit house) as part of a joint effort with MEMPR to characterize exploration and mining opportunities in the Stk'emlupsemc territory and beyond.

The high-technology sector consumes significant amounts of often under-supplied exotic metals such as the rare earth elements. While this is not familiar territory for many explorationists, the geology of the province does support these deposit types. Securing a stable and reliable supply appears to be a challenge for the consumers of these metals and this region has some potential to perhaps meet that need. Again, Asia's involvement in the rare earth element market will be a key to the supply, demand and pricing of this metal group.

Junior companies, who continue to rely upon financing from various stock exchanges, will continue to be challenged as investors cautiously return to the market after a period of volatility erased several years of gains.

SPECIAL PROJECTS

The MEMPR south-central regional office and Stk'emlupsemc Enterprises Inc jointly pursued a project this year aimed at examining exploration and mining opportunities in the Stk'emlupsemc territory and beyond. Stk'emlupsemc Enterprises was created by Tk'emlups and Skeetchestn Indian Bands to manage the business affairs related to the New Afton Participation Agreement. This year's project involved the creation of a mineral inventory report of the lands of the respective bands as well a natural resource guide to give band members a brief overview of the traditional and contemporary uses of their natural resources. The company employed Jo-Anne Mosterd, a student in the Thompson Rivers University Bachelor of Natural Resource Science degree program and a Tk'emlups Band member, to work in the Ministry's office on the project (Figure 4.21). She spent almost six months working on the project and the products are coming together very well. This project has been valuable for the individuals and organizations involved; much was learned about government and mining industry

culture and conversely about the culture of the Secwepemc people. Jo-Anne has graduated from the program and looks forward to an exciting career in natural resource management.

