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# Regional Geologist Summaries

## EXPLORATION AND MINING IN BRITISH COLUMBIA 2012



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Regional Geologist Summaries  
**EXPLORATION AND MINING**  
**in British Columbia 2012**

# EXPLORATION AND MINING IN THE THOMPSON-OKANAGAN-CARIBOO REGION, BRITISH COLUMBIA

Regional Office, Kamloops

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## EDITOR'S NOTE

No comprehensive summary for the Thompson-Okanagan-Cariboo region was available at press time. The region has a healthy exploration, development and mining industry. This editor's contribution is intended to highlight mines and exploration projects that represent the region. Regrettably, many worthy projects have been omitted.

The region contains roughly 36 industrial mineral mines, 56 rock quarries, 480 sand and gravel pits, and 704 placer mines that all contribute to local economies but are not reviewed here.

## 4.2 MINES

Table 4.1 lists operating metal and industrial mineral mines discussed in this report. Figure 4.1 shows their locations.

### 4.2.1 Metal Mines

With five major operating mines the Thompson-Okanagan-Cariboo region hosts roughly half of the province's metal mines. Two mine openings in 2012 and large expansions in the last few years have bolstered the local economy in a time when other industries have contracted.

Construction was completed this year at the **New Afton** gold-copper mine of New Gold Inc and it opened officially ahead of schedule in June. Metal production is forecast to be between 13.6-15.9 thousand tonnes Cu and 1 100-1 400 kilograms Au. The development cost of the mine is approximately \$765 million and is expected to achieve a mill rate of 11 000 t/d in early 2013. This operation ushers in a new era of large tonnage underground mining, utilizing block cave techniques that are anticipated to be closely studied by other British Columbia projects with higher grade resources at depth. In September the company celebrated their achievement with an Open Day attended by over 1 800 people from the Kamloops area as well as government officials (Figure 4.2).

The **Copper Mountain** copper mine near Princeton has been in production since August 2011 and is operated

by a partnership of Copper Mountain Mining Corporation (75%) and Mitsubishi Materials Corporation (25%). An increased mining rate has occurred to optimize mill throughput closer to 35 000 t/d and enhance copper recovery. A multi-year exploration program is actively upgrading resources, testing ore depths and mineralization outside the current mine plan.

Near Williams Lake, the **Gibraltar** copper-molybdenum mine, operated by Taseko Mines Limited and Cariboo Copper Corp, is nearing the conclusion of the third phase of the Gibraltar Development Plan to modernize the mine. By the end of 2012 the company will have invested ~\$700 million. Once completed the mine is expected to be Canada's second largest copper producer.

The **Highland Valley Copper** copper-molybdenum mine near Logan Lake is operated by Teck Highland Valley Copper Partnership (97.5% Teck and 2.5% Highmont Mining Company Ltd) and the largest base metal mine in Canada. Construction is underway on a \$475 million mill optimization that is part of an extended mine life to 2026.

Located West of Williams Lake, the **Mount Polley** copper mine of Imperial Metals Corporation continues to search for resources outside its main producing Springer pit. Exploration efforts include drilling at the Springer and Cariboo pits, Quarry, WX and C2 zones plus underground drilling from a decline into the Boundary zone.

The **QR** mine of Barkerville Gold Mines Ltd has operated sporadically in recent years and was shut in November 2011 due to depletion of sustaining quantities of ore. In early December, mining resumed in the West zone with the intention to produce gold late in the year. The mill awaits shipments of new ore from the Bonanza Ledge mine, near Wells, which is under development.

In May, Huldra Silver Inc began a small scale, high grading, test operation at its **Treasure Mountain** project located south of Merritt, in upper Tulameen River. The Treasure Mountain deposit is described as a stacked series of high grade silver-lead-zinc veins in Cretaceous sedimentary rocks of the Pasayten Group. Vein material is mined underground and transported to Merritt for concentrating. The mill is located at the former Craigmont tailings facility where a magnetite recovery plant has operated for many years. A resource estimate (indicated, but not in conformity with NI 43-101) prepared in 2009 was 33 000 tonnes grading 828 g/t Ag, 4.16% Pb, and 3.8% Zn, at a 311 g/t Ag cut-off.



**TABLE 4.1 THOMPSON-OKANAGAN-CARIBOO REGION MINE PRODUCTION, 2012**

<b>Mine</b>	<b>Operator</b>	<b>Deposit Type / Commodity</b>	<b>Production</b> (tonnes or kilograms; 2012 estimate by government)	<b>Number of Employees</b> (date)	<b>Proven and Probable Reserves</b> (tonnes; date published)
<b>Metals</b>					
Bralorne	Bralorne Gold Mines Ltd	Vein Au	200 kg Au	47 (October 2011)	Not available
Copper Mountain	Copper Mountain / Mitsubishi Materials	Alkalic porphyry Cu, Au, Ag	26 000 t Cu; 540 kg Au, 11 900 kg Ag	360 (Dec 2012)	211 000 000 t at 0.36% Cu, 0.1 g/t Au and 1.38 g/t Ag (28 July 2009)
Gibraltar	Taseko Mines Limited / Cariboo Copper Corp	Calc-alkalic porphyry Cu, Mo	40 300 t Cu, 660 t Mo	630 (Dec 2012)	802 000 000 t at 0.30% Cu and 0.008% Mo (31 March 2011)
Highland Valley Copper	Teck Highland Valley Copper Partnership	Calc-alkalic porphyry Cu, Mo	105 000 t Cu; 4 500 t Mo	1267 (Nov 2011)	673 300 000 t at 0.29% Cu and 0.008% Mo (31 Dec 2011)
Mount Polley	Imperial Metals Corporation	Alkalic porphyry, Skarn Cu, Au, Ag	15 400 t Cu, 1 460 kg Au, 2 800 kg Ag	370 (Nov 2011)	87 300 000 t at 0.29% Cu, 0.3 g/t Au and 0.41 g/t Ag (1 Mar 2012)
New Afton (June 2012 start up)	New Gold Inc	Alkalic porphyry Au, Cu	13 600-15 875 t Cu 1 100 -1 400 kg Au (2012 guidance)	498 (Dec 2012)	47 900 t at 0.64 g/t Au, 2.0 g/t Ag and 0.90% Cu (31 Dec 2011)
QR (Dec 2012 start up)	Barkerville Gold Mines Ltd	Skarn Au	Unreported	~70	Not available
Treasure Mountain (May 2012 start up)	Huldra Silver Inc	Vein Ag, Pb, Zn	Unreported	~50	Not available
<b>Coal</b>					
Basin	Coalmont Energy Corp	Thermal coal	0 (mining to resume in 2013)	Not available	Not available
<b>Industrial Minerals</b>					
Ashcroft	IG Machine and Fiber Ltd (IKO Industries Ltd)	Basalt (roofing granules)	350 000 t	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 t	~30 (plant; seasonal)	
Decor	Pacific Bentonite Ltd	Alumina, landscape rock		~2 (including trucking)	
Falkland	Lafarge Canada Inc	Gypsum	6 000 t	see Harper Ranch	
Harper Ranch	Lafarge Canada Inc	Limestone	220 000 t	34 plus 10 contractors (plant & 3 quarries)	
Kettle Valley quarries	Kettle Valley Stone Company	Ashlar, flagstone, thin veneer		~40 (plant & quarries)	
Klinker	Okanagan Opal	Opal			
Pavilion	Graymont Western Canada Inc	Limestone	190 000 t	~34 (plant & quarry)	
Red Lake	Absorbent Products Ltd	Diatomaceous earth		40 (plant & 3 quarries)	
Zeotech Bromley Creek	Heemskirk Canada Ltd.	Zeolite			



Figure 4.2. New Afton opens with a blast! Pyrotechnical demonstration from the mine's Open Day in September (Steve Rothman photo).

Bralorne Gold Mines Ltd has been milling approximately 80 t/d from stockpiled and underground resources at its **Bralorne** gold mine. The company is mining gold-bearing mesothermal quartz veins in relatively undeveloped areas between three former mines: Bralorne, King and Pioneer. The company is currently evaluating its existing resources to identify targets for future development and advance an objective of expanding the operation from under 100 t/d to over 200 t/d. The company has been actively developing the BK-3 zone through drifting and underground drilling.

## 4.3 MINE DEVELOPMENT AND EVALUATION

### 4.3.1 Mine Development

In December 2011, the **Bonanza Ledge** project of Barkerville Gold Mines Ltd received approval under the *Mines Act* to develop an open pit gold mine near Wells. The open pit site has been logged and grubbed in preparation for mining and an agreement has been reached with forestry operators to utilize the 500 Forest Service Road to truck the ore 100 km to the QR Mine where it will be milled. The permit at the QR mine has

been amended to accommodate the ore and the mill has been made ready. The company reports that the current mine plan is to extract approximately 73 000 tonnes of gold ore per year (grading 9.05 g/t Au) over a period of four years. Ore consists of native gold in quartz veins within carbonaceous and chloritic phyllite. Stated reserves (as of August 2009) include 130 724 tonnes grading 10.227 g/t Au in the proven category and 166 808 tonnes grading 8.114 g/t Au in the probable category.

Coalmont Energy Corp, a subsidiary of Arthon Industries Limited, continues to move toward resuming production at the **Basin** mine near Coalmont which contains thermal-grade coal (Figure 4.3). The mine had been on care and maintenance since 2007. Activities this year included the acquisition of a new wash plant, road upgrades, and securing transport to tidewater.

### 4.3.2 Mine Evaluation

The proposed **New Prosperity** gold-copper mine of Taseko Mines Limited received an environmental certificate from the BC Environmental Assessment Office in January 2010. A revised proposal has been submitted to the Canadian Environmental Assessment Agency (CEAA) after an initial design was rejected. In September the company formally submitted an Environmental Impact Statement to an appointed review panel for consideration. The redesigned project has moved mine infrastructure in an effort to protect a water body of local significance. The deposit is located 125 km southwest of Williams Lake. It is described as a gold-copper porphyry with proven and probable reserves of 830 million tonnes grading 0.42 g/t Au and 0.23 % Cu.

Yellowhead Mining Inc is advancing its **Harper Creek** copper-gold-silver deposit near Vavenby, about 90 km northeast of Kamloops. It is a stratiform deposit within metamorphosed volcanic and volcano-sedimentary rocks of the Eagle Bay Formation. The company is working towards submission of an environmental assessment of the project as part of the formal project assessment process. On the ground, a comprehensive baseline study is underway and ongoing consultation with local communities and First Nations is occurring. A feasibility study is now complete and contemplates a 70 000 t/d mine exploiting reserves of 704.4 million tonnes at 0.26% Cu, 0.029 g/t Au and 1.14 g/t Ag (proven and probable). Continued exploration activities are aimed at upgrading further resources and include an 11 000 m drill program that started in early winter 2012.

The **Ruddock Creek** zinc-lead deposit is in the pre-application stage of the BC Environmental Assessment process. The project is owned by Imperial Metals Corporation (65%) and joint venture partners Mitsui Mining and Smelting Co Ltd and Itochu Corporation (35%). The deposit is described as sedimentary



Figure 4.3. Basin coal mine is expected to resume production early in 2013 (image courtesy of Coalmont Energy Corp).

exhalative, Monashee or Broken Hill-type, within marble, gneiss and calc-silicate rocks. A mineral resource estimate, released in March 2012, reported 4.65 million tonnes of 6.77% Zn and 1.38% Pb (indicated) and 5.38 million tonnes of 6.69% Zn and 1.31% Pb (inferred), using a 4.0% combined Pb and Zn cut-off.

A Preliminary Economic Analysis, which will include a mineral resource estimate that incorporates 2012 drilling results, is anticipated early in 2013. On-site activities included surface drilling at the V and Creek zones, and underground drilling and a bulk sample extraction from the E zone.

On the southern outskirts of Kamloops lies the **Ajax** copper-gold porphyry deposit which is undergoing environmental assessment as a proposed mine by KGHM Ajax Mining Inc. Its proximity to the city has demanded the company's vigilance in undertaking extensive baseline studies on air and water quality, dust and vibration, as well as traffic and socioeconomic impacts. The proposal would see a 60 000 t/d open pit mine based on reserves of

503 million tonnes of 0.27% Cu and 0.17 g/t Au. The site is a former open pit operation which was part of the Afton mine that closed in the mid-1990s.

In December, Spanish Mountain Gold Ltd released a Preliminary Economic Assessment of its flagship **Spanish Mountain** project, a low-grade, large tonnage gold and silver deposit within fine grained sedimentary rocks. Located 66 km northeast of Williams Lake, this project represents a relatively new class of deposits known provincially as shale-hosted vein deposits – although the gold values are largely disseminated outside of veins. The company has utilized a resource of 216.2 million tonnes of 0.46 g/t Au and 0.68 g/t Ag (measured and indicated) and 316.7 million tonnes of 0.36 g/t Au and 0.65 g/t Ag (inferred) in its recent assessment. This supports a 40 000 t/d operation for up to 15 years at a capital cost of \$755.9 million. The operation would see 2.8 million ounces of gold and 1 million ounces of silver over the life of mine at a cash cost of \$774/oz. The project has been introduced to the formal environmental assessment process where it is at a pre-application stage.

## 4.4 EXPLORATION PROJECTS

Projects are arranged by deposit type and geography. Table 4.2 lists exploration projects discussed in this report. Figure 4.1 shows their locations.

### 4.4.1 Porphyry projects

#### *Thompson River - Shuswap Lake*

At **Highland Valley Copper** mine, Teck Highland Valley Copper Partnership conducted an IP survey around the former Bethlehem mine and drilled near their Valley pit. Results have not been published.

Getty Copper Inc. continues to seek partners for its **Getty North** deposit, **Getty South** deposit, and **Getty West** zone. No exploration was conducted in 2012.

At the **Rateria** porphyry copper-molybdenum property, located 12 km southeast of Highland Valley Copper mine, Happy Creek Minerals Ltd. collected a bulk sample from Zone 1 drill core for metallurgical testing and drilled two holes on Zone 2, which has anomalous rhenium. Four km west of Rateria, the company flew a geophysical survey at their **West Valley** property.

In September, Blue River Resources Ltd started a 1 500 m drilling program on their **Highland Valley North Project**, a copper porphyry target located 6 km east of Highland Valley Copper mine. Results are pending. The company also planned work on their **Castle** property, another porphyry target located 25 km north of Princeton.

Dakar Resources Corp drilled four holes on the **Nap** property, a porphyry-related copper-gold-silver-zinc target, located 40 km south of Kamloops (Figure 4.4). A company news release (dated 2012-11-29) states: "copper mineralization occurs mainly as disseminations of chalcopyrite in biotite hornfelsed metasediments with lesser augite porphyry."

In January, Dundarave Resources Inc optioned the **Jesse Creek** property from owners John Dawson and Gary Belik. The property is 5 km northeast of Merritt. In the spring, the company flew a 1 050 line km helicopter-borne magnetic gradiometer survey, followed by 69 line km of IP in the fall. The company reports that these surveys (along with mapping, sampling and known mineralization), confirm that the property has two porphyry systems: calc-alkaline and alkaline. The calc-alkaline system occurs in the north, and may be a faulted extension of the Guichon batholith. The alkaline system occurs in the south and has six known mineral occurrences (of skarn and intrusive affinities) associated with it. Dundarave sub-optioned the claims to Ocean Park Ventures Corp who started a 2 000 m drilling program in November. Results are pending.

#### *Cariboo*

In the Takomkane batholith, the **Woodjam North** and **Woodjam South** properties located 50 km NE of Williams Lake continued to be explored by Gold Fields Horsefly Exploration Corp. In March the company released a preliminary resource estimate for the Southeast Zone, comprising 145.5 million tonnes at 0.33% Cu and 0.06 g/t Au. In August, the company reported discovering a new zone, named the Three Firs, where three of seven drill holes had disseminated copper and gold over drill lengths of from 100 to 350 metres. By year's end over 36 600m of drilling had been completed on several of Woodjam's targets.

Fjordland Exploration Inc regained 100% interest on its **Tak** property after Capstone Mining Corp decided not to proceed with its option. Future exploration will focus on refining IP targets, followed by drilling, subject to financing.

In December, Constantia Resources Ltd received approval to drill the **Maggie** prospect, located 15 km north of Cache Creek. The company plans 75 000 m of drilling, in 200 holes, over 5 years. According to MINFILE, exploration in the 1960s identified a resource of 181.4 million tonnes grading 0.28% Cu and 0.029% Mo.

#### *Chilcotin*

Continued drilling by Amarc Resources Ltd on the **Newton** property, a disseminated gold and silver target southwest of Williams Lake, has led to the release of a resource estimate of 111.5 Mt of 0.44 g/t Au and 2.1 g/t Ag using a 0.25 g/t Au cut-off (inferred). Geologically, the project carries many hallmark similarities to other large epithermal-style projects being explored in the province, including the exciting Blackwater project located approximately 175 km to northwest. Evidence of metallogenic similarities among several projects in this part of the province is leading to the term "Chilcotin Plateau Gold Belt" as a descriptor to bind them.

The company reports this epithermal system formed approximately 72 million years ago, contemporaneously with felsic volcanic and intrusive rocks that were emplaced into a structurally-active graben environment. Mineralization accompanies extensive zones of strong quartz-sericite alteration.

In March, Highpointe Exploration Inc released results from a fall 2011 reconnaissance drill program on the **Tasco** property, 150 km southwest of Williams Lake. Two holes were drilled, totaling 683 m. Hole 1 intercepted 216 m of 0.29% Cu, 0.02% Mo and 1.9 g/t Ag.



**TABLE 4.2. SELECTED EXPLORATION PROJECTS, THOMPSON-OKANAGAN-CARIBOO REGION, 2012**

<b>Property</b>	<b>Operator</b>	<b>MINFILE</b>	<b>Commodity</b>	<b>Deposit Type</b>	<b>Work Program</b>
Afton Area (West Ajax, East Ajax)	Abacus Mining and Exploration Corp / KGHM	092INE 012, 013, 028, 030	Cu, Au, Ag, Pd	Porphyry	FS, ES, DD
Blackdome Mine	Sona Resource Corp	092O 053, 051, 052	Au, Ag	Vein / Breccia	A
Blue River Tantalum/Niobium (Upper Fir)	Commerce Resources Corp	083D 005, 035	Ta, Nb	Magmatic	MS, G,
Bonanza Ledge	Barkerville Gold Mines Ltd	093H 019	Au	Vein / Breccia	Preparations for mining
Bralorne Camp	Bralorne Gold Mines Ltd	092JNE 164, 001	Au, Ag	Vein / Breccia	DD
Cariboo Gold Quartz	Barkerville Gold Mines Ltd	093H 019	Au	Vein / Breccia	DD; resource estimate
Copper Mountain (Exploration)	Copper Mountain Mining Corporation	092HSE 001, 024	Cu, Au	Porphyry	DD
Elizabeth	Sona Resources Corp	092O 012	Au, Ag, Cu, Mo	Vein / Breccia	A
Elk (Siwash North)	Gold Mountain Mining Corporation	092HNE 096	Au, Ag	Vein / Breccia	IP, DD; BU
Fox / Ridley Creek	Happy Creek Minerals Ltd	093A 259	W, Mo, Ag	Skarn	DD
Golden Loon (Gold)	Planet Mining Exploration Inc	092P 141	Au, Ag	Vein / Breccia	DD, MS
Golden Loon (Platinum)	Planet Mining Exploration Inc	092P 043	Ni, Co, Pt, Pd	Magmatic	GC
Harper Creek	Yellowhead Mining Inc	082M 008, 009	Cu, Ag, Au, Zn, Mo	Stratiform Sulphide	PFS, EN, DD
Highland Valley Mine (Exploration)	Teck Highland Valley Copper Partnership	092ISE 013	Cu, Mo	Porphyry	DD; IP
Jesse Creek	Dundarave Resources Inc / Ocean Park Ventures Corp	092ISE 064	Cu, Au	Porphyry	AB-MG, IP, DD
Lac La Hache (Aurizon; Peach L, Spout L)	GWR Resources Inc	092P 001, 002, 034, 035	Cu, Au, Fe, Ag	Skarn / Porphyry	DD, GP
Miner Mountain	Sego Resources Inc	092HSE 078, 203	Cu, Au, Ag	Porphyry	DD
Newton	Amarc Resources Ltd	092O 050	Au, Ag	Vein / Breccia	DD
Ruddock Creek	Imperial Metals	082M 082	Zn, Pb, Ag	Massive sulphide	DD; PEA
Shovelnose	Strongbow Exploration Inc / Westhaven Ventures Inc	092HNE 309	Au	Vein / Breccia	DD
Woodjam	Gold Fields Horsefly Exploration Corporation	093A 019	Cu; Au	Porphyry	DD

**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); CD = condemnation drilling; CQ = coal quality testing; CT = carbonization test (coal); DD (X m) = X metres of diamond drilling; EN = environmental baseline studies/monitoring, remediation work; FS = feasibility studies; G = geology, mapping, etc; GC = geochemical sampling (rock, soil, silt, etc); GD = geotechnical 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 circulation drilling; TR = trenching, UG (X m) = X metres of underground development; UG-BU = underground bulk sample; UT = UTEM; VLF; WT = washability test (coal)



Figure 4.4. Drilling at the Nap property south of Kamloops (Leo Lindinger photo).

### ***Similkameen River***

Approximately 4 km south of the Copper Mountain mine, Anglo-Canadian Mining Corp drilled three holes (719 m) at its **Princeton Copper Gold** project. Results released in August note that hole PR-12-26, at the Combination Zone, intersected 20 metres grading 0.64% copper and 2.6 g/t Ag. The company has permits for a further 15 000 m of drilling.

In January, SeGo Resources Inc conducted a diamond drilling program (8 holes; 1 622 m) on the Cuba Zone at their **Miner Mountain Copper-Gold** Porphyry Project. The program confirmed results of previous percussion drilling.

### **4.4.2 Skarn Projects**

#### ***Cariboo***

GWR Resources Inc made progress on several fronts within its **Lac La Hache** Project. The project embraces a large area (400 sq km) and a multiplicity of deposit types and exploration targets which make classification and

discussion challenging. Broadly speaking, mineralization ranges from high grade, massive to semi-massive, skarns, veins, replacements and breccias to low grade porphyries and epithermal disseminations.

In January the company reported the acquisition of the **Murphy** Block, 33 claims covering 31 140 ha that lie north of (and are contiguous with) their existing property.

In June the company reported its first ever NI 43-101 compliant resource estimate for the **Spout** copper-magnetite-gold-silver skarn zones: a 23.4 million tonne, open-pit mineable resource (indicated and inferred categories) containing 54 million kg Cu, 1 013 kg Au, 24 500 kg Ag and 2.2 million tonnes magnetite (with a cut-off of 0.2% Cu equivalent).

The company drilled 3 895 m (13 holes) including reconnaissance drilling along the projected contact of the Murphy intrusion and shallow drilling at the **Aurizon South** gold-copper-silver zone, which succeeded in extending the zone 200 m farther to the south.

The company also conducted grassroots exploration on the Murphy Block. The survey defined a 32-km long, arcuate aeromagnetic anomaly that appears to align with zones of known mineralization, suggesting that the entire feature is prospective (Figure 4.5).

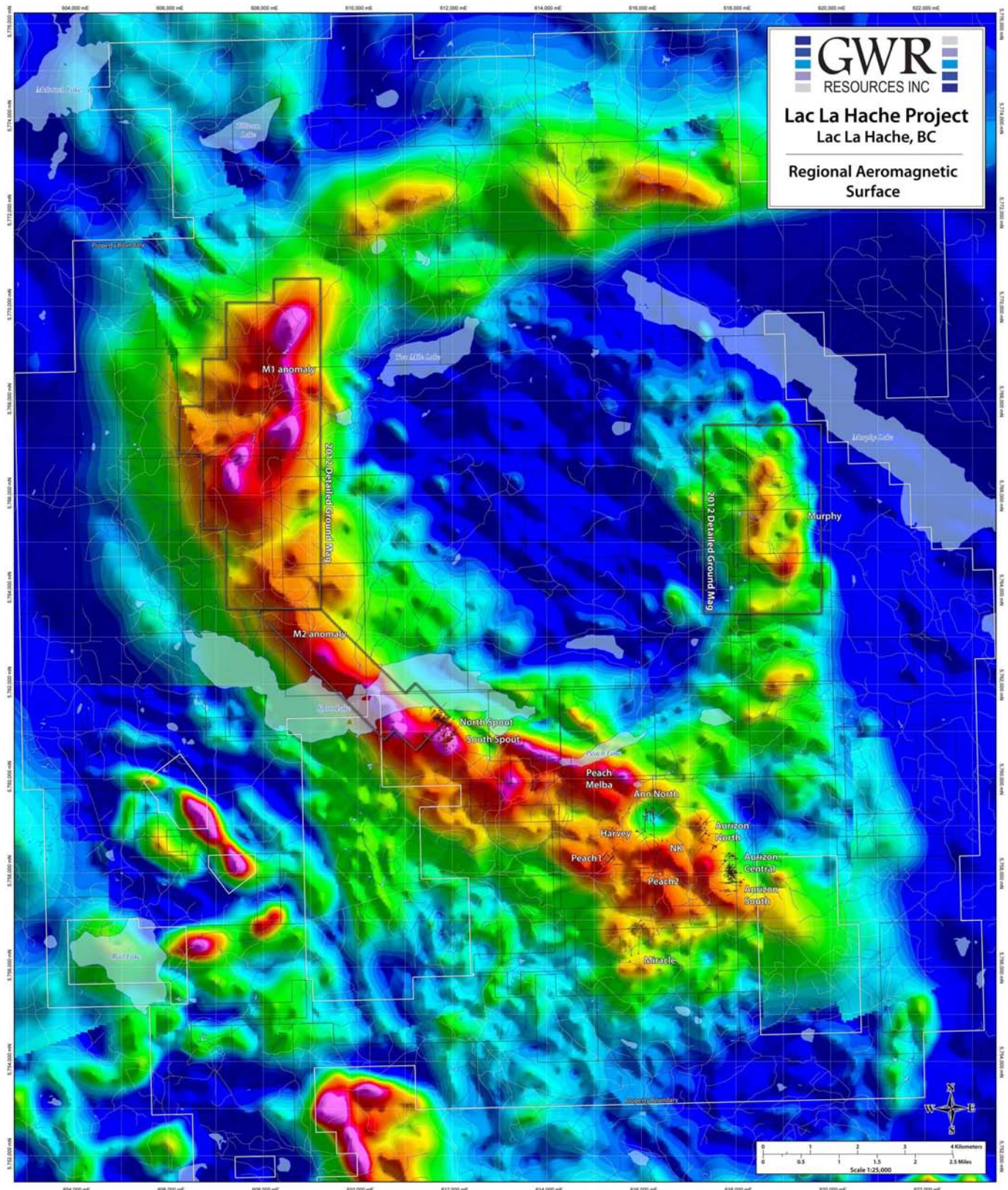


Figure 4.5. Arc-shaped aeromagnetic anomaly at Lac la Hache project (image courtesy of GWR Resources Inc).

At the **Fox tungsten-molybdenum**, property, 75 km northeast of 100 Mile House, Happy Creek Minerals Ltd reported encouraging results from follow-up drilling of the Ridley Creek zone as well as step-out drilling on the BN and BK zones located, respectively, 1 km to the south and north of Ridley Creek prospect. At the BN zone, the company reported a drill intersection of 14.8 m of 4.0% WO<sub>3</sub>. At the BK, drilling intersected 5.0 m of 0.68% WO<sub>3</sub>. More work is planned for 2013.

#### 4.4.3 Vein and breccia projects

##### *Thompson River - Shuswap Lake*

WestKam Gold Corp reached an Advanced Exploration Agreement with the Stk'emlupsemc te Secwepemc Nation in preparation for work on their **Bonaparte** property, a series of en echelon quartz veins within the Thuya batholith, located 35 km north of Kamloops. Exploration is anticipated to begin in 2013.

Planet Mining Exploration Ltd continued to work on their **Golden Loon** property, located 8 km west of Little Fort. The property has two divergent styles of mineralization. One comprises nickel-cobalt-PGE in an ultramafic intrusion (see notes below). The other is disseminated gold in silicified zones within highly altered country rock. In 2012 the company drilled 16 holes (3 277 m) to test the distribution and tenor of gold mineralization. Typical assays were in the order of 1 g/t Au over 10 m.

##### *Cariboo*

Throughout 2011 Barkerville Gold Mines Ltd aggressively drilled their **Cariboo Gold Project** (almost 240 holes and 58 000 metres). In June 2012 they announced an NI 43-101 compliant resource with an estimated 10 million ounces of gold, supplemented in August by a report substantiating their news release. BC Securities Commission reviewed these releases and, citing technical disclosure concerns, issued a cease trade order. The company reports that it has been working diligently to prepare a satisfactory report. At the request of one of its consultants, the company drilled a further 14 holes (~2 760 m), 9 of which twinned previous holes.

##### *Chilcotin*

In October, Sona Resources Corp. received a special use permit that authorizes the construction of a ~5 km of access road to connect the **Elizabeth** mesothermal gold-vein deposit (developed prospect) and **Blackdome** epithermal gold-vein deposit (past producer). Road

construction is expected to begin in 2013. The company reports that it has permits in place for a further 6 000 m of drilling.

Manado Gold Corp drilled the South and Bari zones on their **Clisbako** property, 125 km west of Williams Lake, to test the extent and tenor of mineralization in silica stockworks and breccias.

##### *Fraser River*

In January, Berkwood Resources Ltd regained control of the **Prospect Valley** property, located 30 km west of Merritt, and reissued a mineral resource estimate (NI 43-101 compliant) prepared by former optionee Altair Ventures Incorporated (now Altair Gold Inc). The North and South Discovery zones together have an inferred resource of approximately 10 million tonnes grading 0.5 g/t Au (using 0.3 g/t Au cut off). Mineralization discovered to date is described as a low grade, epithermal gold system with potential for higher grade zones. In the summer, the company trenched and sampled and was successful in extending gold mineralization for 1 km along the projected trend of the Discovery zone.

Westhaven Ventures Inc completed a 5.5 km IP survey and a 5 hole (778 m) drill program at the **Shovelnose** epithermal gold property located 30 km south of Merritt. One focus of interest was Tower Creek valley, a structural feature between the Tower and Mik zones. Drilling encountered zones of silicification and quartz stockworks in felsic tuffs, suggestive of an epithermal mineralizing system. Host rocks are felsic volcanics of the Cretaceous Spences Bridge Group. Westhaven is working to earn up to 70% interest in the property from Strongbow Exploration Inc.

##### *Okanagan*

Gold Mountain Mining Corporation conducted an aggressive exploration program on their **Elk** project, located 45 km east of Merritt and just 2 km south of the Okanagan Connector (Highway 97C). Exploration included diamond drilling (~13 000 m), IP, and bulk sampling. The property has at least nine separate zones of mineralization. In several of them, gold occurs in quartz-pyrite veins within equigranular, coarse grained, mid-Jurassic granite. The company began bulk sampling in an area of previously delineated mineralization east of the past producing Siwash North open pit. Late in 2012, the company filed an application under the *Mines Act* to increase production from 10 000 tonnes to 70 000 tonnes per year.

#### 4.4.4 Stratiform Sulphide Projects

##### *Thompson River - Shuswap Lake*

Northeast of Barriere, Astral Mining Corporation optioned two large groups of claims from owner David J. Piggan. Geophysical surveys were flown over both the **Barriere Ridge** and **Honeymoon** properties. Drill targets are being identified. Prospective lithologies include Eagle Bay Assemblage (Figure 4.6) and contacts with the Cretaceous Baldy batholith.

Cullen Resources Limited completed a 6 hole (463 m) drilling program on the **TL** property, south of Tsuius Creek, 8 km east of Mabel Lake (Figure 4.7). Trenching in 2011 revealed a 3 m zone grading 9% Zn. Drilling intersected pyrrhotite, pyrite and sphalerite in multiple zones up to 1 m thick within a sequence of calc-silicates and graphitic quartzites. Gossanous subcrop ~300 m to the south yielded 2.25% Zn and anomalous Re, Mo and Cu. Drilling took place at the northern end of a large conductor and magnetic anomaly outlined from a HeliTEM survey. More work is planned for 2013.

MatNic Resources Inc drilled 3 holes (869 m) on their **Shuswap** property, 18 km east of Salmon Arm, an area that has not seen exploration activity in some time. The company tested airborne electromagnetic anomalies and surface showings of base metal mineralization, within schists of the Shuswap metamorphic complex, near the Annis adit (MINFILE 082LNW 023). The best intersection was 6 m of ~1% Pb, ~1% Zn and 10 g/t Ag.

#### 4.4.6 Magmatic Projects

##### *Thompson River - Shuswap Lake*

Commerce Resources Corp. reported progress on its **Blue River** project, tantalum and niobium bearing carbonatite, 30 km north of Blue River. The company continued metallurgical studies reporting satisfactory results. Field work consisted of structural geology reviews, in order to refine models used for resource calculations, and re-logging selected diamond drill cores. A mineral resource update, supplementing a 2011 Preliminary Economic Assessment, was released in July 2012. A further update which will include all data collected on the property is expected in early 2013.

Planet Mining Exploration Ltd continued work on their **Golden Loon** property, located 8 km west of Little Fort. The company is pursuing two targets: one comprises gold in silicified zones (see notes above). The other is nickel-cobalt-platinum group elements in a large, zoned, Alaskan-type ultramafic intrusion. In March the company reported elevated Ni-Co-Ag-Pt in samples of core drilled



Figure 4.6. Prospector Dave Piggan examining sulphide rich outcrop in Eagle Bay Assemblage (image courtesy of Astral Mining Corporation).



Figure 4.7. TL property east of Mabel Lake: drilling and core (Colin Dunn photos).

in 2008 but which had been incompletely analyzed. Metallurgical studies are planned.

## ***Similkameen River***

Near Tulameen, private company Magnetite Ridge Metals and Minerals Ltd of Kamloops, continued to investigate its large magnetite deposit located at its **Magnetite Ridge** project within the Tulameen Ultramafic Complex. The company reports that metallurgical studies conducted by UBC / BC Mining Research on a large composite sample, grading 30% magnetite, indicate its suitability as both steel smelter feed and coal cleaning heavy medium. The company has applied for a mining lease covering 1.5 sq km. The company also began exploration for potential placer platinum deposits in nearby Champion Creek.

## **OUTLOOK FOR 2013**

Mining operations should officially commence at the Bonanza Ledge and Basin Coal projects.

As mine evaluation projects submit required baseline studies, the next stages of the review process will be triggered. A Federal decision on New Prosperity is expected in 2013.

Most of the exploration projects that were active in 2012 have generated positive results and thus remain on track for advancement, barring downturns in metal markets or crises in international finance. If markets improve, grassroots exploration should pick up in the Eagle Bay Assemblage near Barriere and in the Quesnel terrane between Merritt and Princeton.