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EXPLORATION AND MINING IN BRITISH COLUMBIA 2012



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Ministry of
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EXPLORATION AND MINING
in British Columbia 2012

EXPLORATION AND MINING IN THE SKEENA REGION, BRITISH COLUMBIA

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2.1 SUMMARY AND TRENDS

Exploration and mining activity in the Skeena Region attained a record high level of expenditure in 2012. The apparent tighter fiscal times resulted in less immediate availability to high-risk capital and fewer implemented grassroots stage projects. However, the level of activity maintained by advanced stage exploration projects remained high. Finite exploration budgets have forced companies into exploring smarter, generating higher quality targets before the expense of drill testing; innovative techniques are getting increased mileage out of limited funding; and, of course, there are some less explored, high quality projects available for joint venture options.

At least 82 significant exploration projects (Map 2.1) were active in the region in 2012 and spent over \$285 million -nearly a 30% increase from 2011 (Figure 2.1). Approximately 90% of exploration expenditure was spent on advanced stage projects and the fifteen projects undergoing mine evaluation. The remaining 10% of expenditure was spent on grassroots, and early stage exploration; about half of what a healthy exploration pipeline should be to ensure steady graduation of projects from early stages. The limited number of active early stage projects is reflected in the 8% decrease in exploration drilling (Figure 2.2). Mine construction and development expenditure are estimated at over \$133 million. Expenditure on hydro power-related projects, including the Northwest Transmission Line, totalled over \$1 billion. This level of development spending is unprecedented and reflects the costs of constructing key infrastructure and will be the source of hundreds of long-term, well paying jobs for the northwest. It is also a confirmation that the region is an attractive jurisdiction for large capital projects which inherently increase development confidence for all levels of responsible mineral exploration.

2012 Significant events:

1. Brucejack – 41 bonanza grade (>1000 g/t) gold intercepts (Figure 2.3) from the Valley of the Kings; largest drilling program on the property to date and in the region at 105,769 m.
2. Strong (highest grade to date) porphyry Cu-Au mineralization intercepted at KSM
3. Mines Act Permit issued to Red Chris project, mine construction underway
4. Huckleberry Mine implements Main Zone Optimization plan, extends mine life to 2021
5. Northwest Transmission Line construction continues as well as associated hydro projects
6. Extensive Cu-Au-Mo-Ag porphyry mineralization drilled at Ootsa
7. Kitsault project enters EA process, decision due
8. Tulsequah Chief project receives EA amendment and positive feasibility study
9. Morrison project is denied EA certificate
10. Arctos Anthracite project (formerly Klappan) releases Definitive Feasibility Study
11. Porphyry Au-Cu mineralization identified at Castle Project
12. Large generative exploration programs being conducted by major mining companies

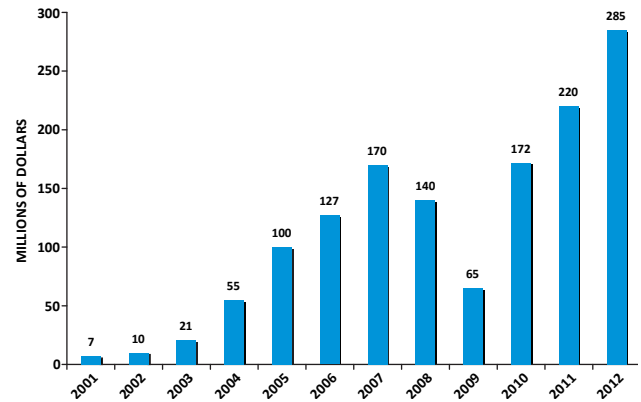


Figure 2.1. Annual exploration expenditure, Skeena Region.

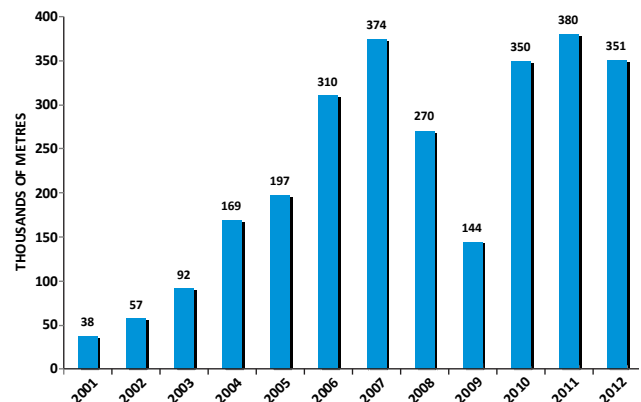
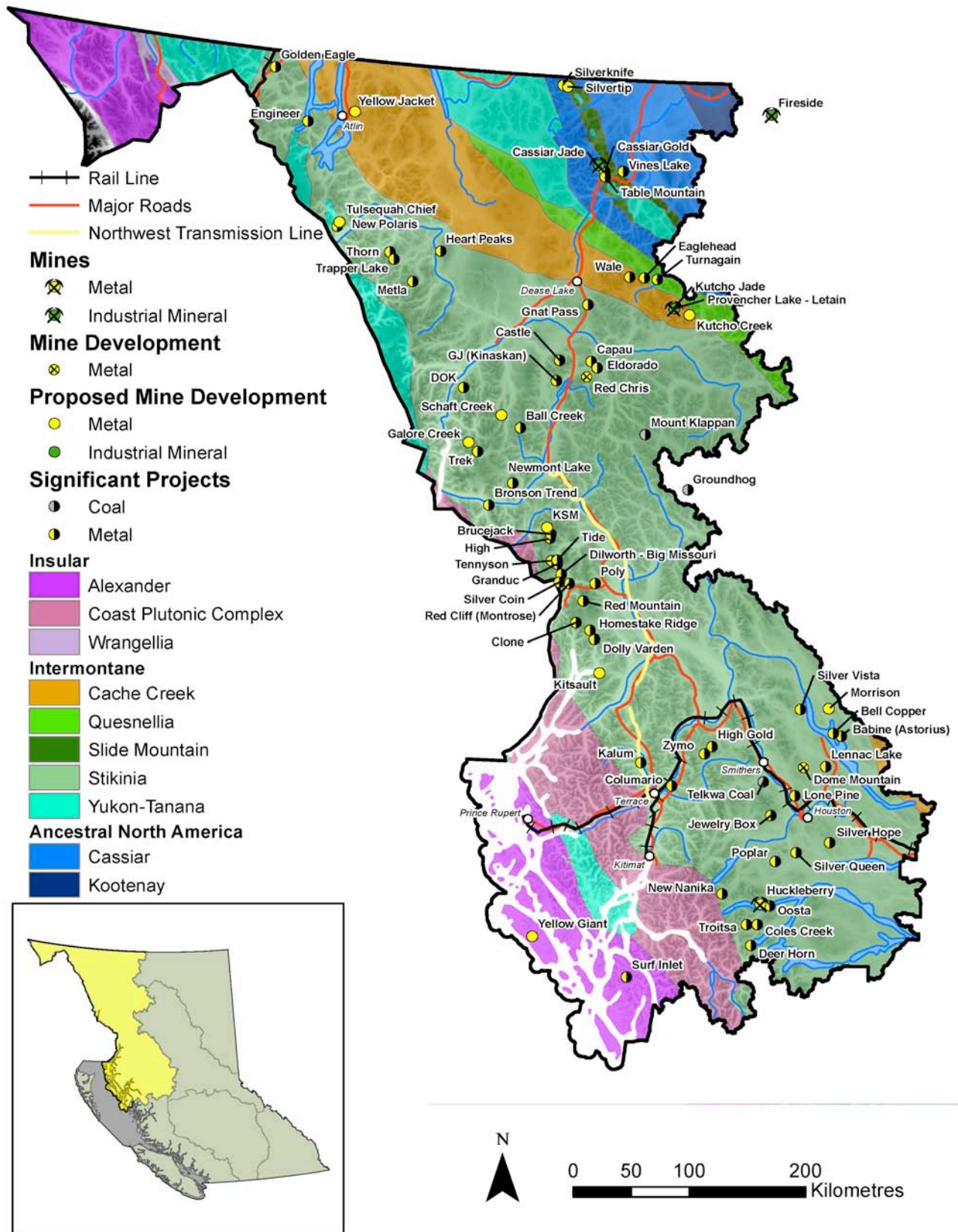


Figure 2.2. Annual exploration drilling, Skeena Region.



Map 2.1. Mines and Major Exploration Projects, Skeena Region, 2012.



Figure 2.3. High-grade gold from the Valley of the Kings zone at Pretivm's Brucejack project. This sample graded 41 582 g/t Au plus 27 725 g/t Ag across 0.5 m from 201.47 m in drill hole SU-452.

2.2 MINES AND QUARRIES

2.2.1 Major Metal Mines

2.2.1.1 Huckleberry

The **Huckleberry** copper-gold-silver-molybdenum mine (MINFILE 93E 037) is located 123 km southwest of Houston BC and is operated by Huckleberry Mines Ltd (Table 2.1). Ownership is divided between Imperial Metals Corp (50%), Mitsubishi Materials Corporation (32%), Dowa Mining Co. Ltd (6%), Furakawa Company Ltd. (6%) and Marubeni Corporation (6%). 2011 metal production totalled 19 427 tonnes copper, 109.48 kilograms gold, 6785 kilograms silver, and 3.14 tonnes molybdenum from 5 929 700 tonnes of ore. Grades averaged 0.365% Cu and 0.007% Mo. Copper recovery was 89.9%. Forecast 2012 metal production is 14 968 tonnes copper, 77.75 kilograms gold and 4416 kilograms silver. A significant amount of material was sourced from low grade stock-piles resulting in expected decreased metal production. Additional ore was mined from the Main Zone Extension (MZX) pit amongst preparation activities associated with the Main Zone Optimization (MZO) mining plan. The MZO development creates a super pit by combining the current MZX pit with the original Main Zone Pit by removing the saddle between them and the tailings and waste rock fill as shown in Figure 2.4. MZO development activities have been a

primary focus of 2012 operations which include a high-wall push back of the MZX pit, stripping waste rock from the previous Main Zone Pit (Figure 2.5), expansion of the East Pit Tailings Dam and construction of a new Tailings Management Facility (TMF 3). Construction of TMF 3 is ahead of schedule by 3 m (927 m) elevation as of October when construction operations were suspended for the winter. The MZO was permitted and approved in January and extends the mine life from 2014 to 2021. MZO reserves excluding stockpiles total 39.7 Mt grading 0.343% Cu and 0.009% Mo at a 0.20% Cu cut-off grade.

Exploration activities included 9.8 line km of Titan-24 Induce Polarization (IP) adding to the 2011 survey and near mine exploration drilling. Three targets were drill tested: MZ Deep, Old Nag Quarry and NW MZO. Two drill holes totalling 1148m tested the MZ Deep target; a moderate chargeability / resistivity anomaly beneath the limits of known mineralization at the Main Zone. Drilling successfully identified significant copper-molybdenum porphyry mineralization with best intercept totalling 192.02 m grading 0.342% Cu and 0.006% Mo from 273.41 m in drill hole MZDP12-6. Mineralization identified in this area lends evidence of a possible continuous zone linking the East and Main Zone deposits. Eight drill holes totalling 2206 m tested the Old Nag Quarry target located immediately adjacent the planned MZO pit. Near surface low-grade (0.20-0.25%) copper mineralization was identified which is not currently in the mine plan. Drilling at the NW MZO totalling 5 holes tested IP anomalies but did not identify significant continuous mineralization.

TABLE 2.1. MINE PRODUCTION AND RESERVES, NORTHWEST REGION

Mine	Operator	Production (2011)	Tonnes milled (2011)	Reserves	Grade
Huckleberry	Huckleberry Mines Ltd.	19 427 tonnes copper 3.14 tonnes molybdenum 109.48 kg gold 6 785kg silver	5 929 700	39 700 000 tonnes @ 0.343% Cu, 0.009% Mo (Nov 22, 2011)	0.365% Cu, 0.007% Mo
Fireside	Fireside Minerals Ltd.	not available	24 000 (in 2012) *approximate*	120 400 (not NI 43-101 compliant)	

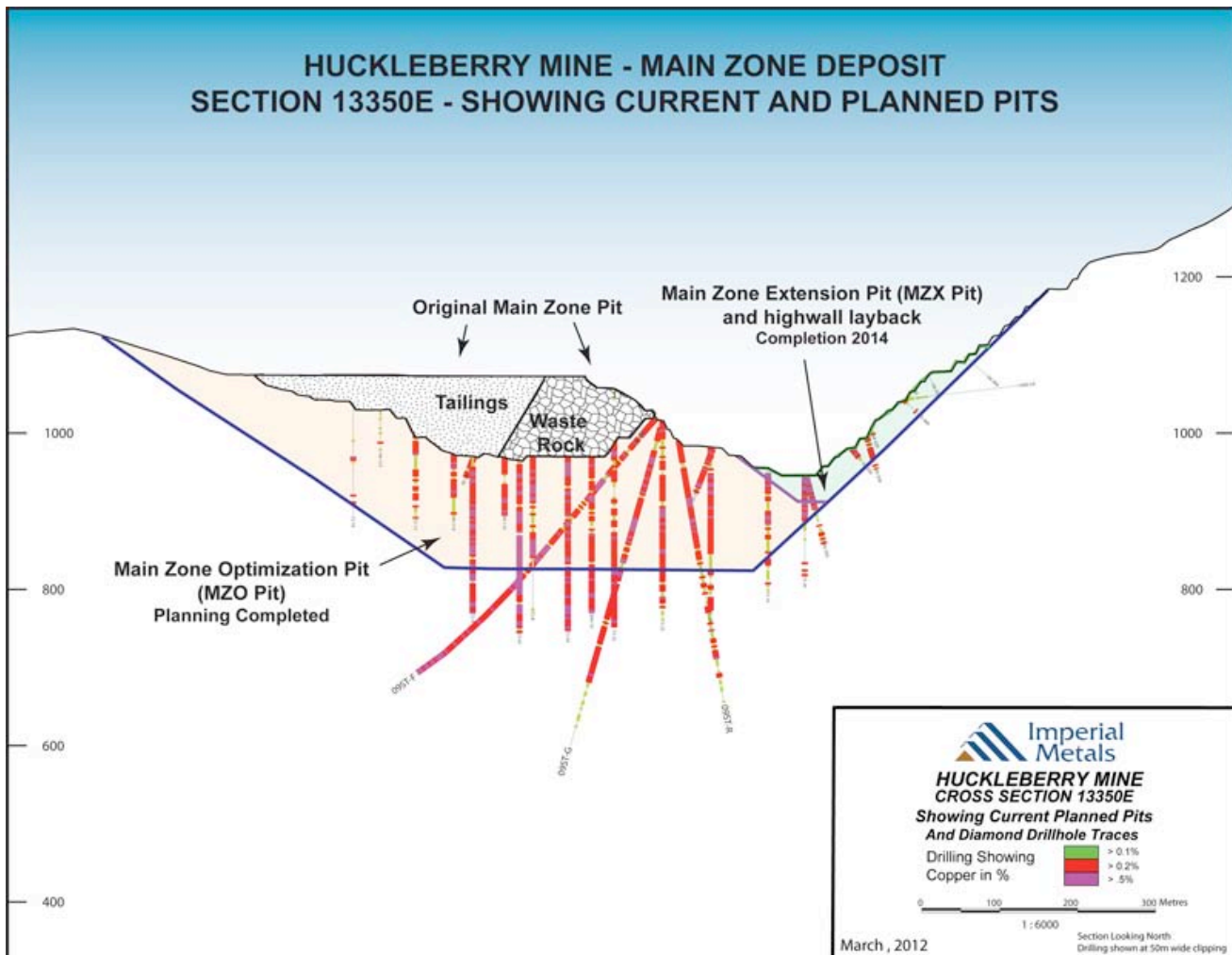


Figure 2.4. Updated Huckleberry Mine Main Zone Optimization cross-section with Cu bearing drill hole traces. Courtesy of Imperial Metals.



Figure 2.5. Overview of the Huckleberry Mine site looking southwest. Huckleberry Mines geologist Justin Schroff points out site components. Mill site is far left, stripping activities for the Main Zone Optimization are mid-left of center, active mining in the Main Zone Extension Pit is bottom center and mid-right of center.

Huckleberry is a porphyry copper deposit related to the late Cretaceous Bulkley intrusions. In the Main zone, copper mineralization occurs in hornfelsed and fractured Hazelton Group volcanic rocks adjacent to a 500 m diameter granodiorite stock. The arcuate ore zone is 150 to 200 m wide by 600 m long and rims the contact of the stock. The mined-out East zone was larger, measuring

150 m wide by one km long, and centred on a fault-controlled 40 m wide granodiorite dike that trends at 105°. Ore in both zones is a stockwork of quartz, pyrite and chalcopryite, crosscut by gypsum-filled fractures. The Main and East zones are disrupted by the 105 Fault resulting in ~100 m of dextral offset of ore. The Main Zone Extension is the faulted portion of the Main Zone north of the 105 Fault.

2.2.2 Quarries

2.2.2.1 Fireside

Fireside Minerals Ltd continued to mine barite from its summer-seasonal **Fireside** barite operation (MINFILE 94M 003) located 125 km east of Watson Lake (Table 2.1). Total barite production estimates were not available. Step-out reverse circulation drilling continues to identify barite mineralization however confidence is limited due to RC recovery. A newly re-fitted bagging plant shown in Figure 2.6 has been constructed at the mine site and began operations in July. Remaining barite was trucked to the company's bagging plant in Watson Lake. Bagged product is sold on site to various operators who utilize the drilling fluid additive in the oil and gas industry.

Steeply-dipping barite veins at Fireside are associated with a gabbro dike of inferred Paleozoic age emplaced into Kechika Group strata, possibly related to rifting of the early Paleozoic North American continental shelf (Wojdak, 2008).

Nephrite jade mining in northwestern BC continued seasonal operations in the Dease Lake area at four quarries: **Provencher Lake** (MINFILE 104I 073, 092), **Kutcho** (MINFILE 104I 078), **Cassiar** (MINFILE 104P 005) and **Dynasty** (MINFILE 104J 057). The Dynasty quarry is shown in Figure 2.7. Total production numbers of the gemstone are not available. Total jade sales are by private arrangement and range from small, highly polished pendants to multi-tonne rough boulders. Buyers of the raw boulders generally ship the stones off-shore for sculpting.

BC Jade is mined as a variety of placer as most boulders are not found in place. The exception is Dynasty where the jade is mined within an exposed shear zone of serpentinite. Nephrite jade is formed at the contact between tectonically-emplaced serpentinite and argillite of the Cache Creek terrane east of Dease Lake, and of the Slide Mountain terrane at Cassiar.

Industrial quarries in the Prince Rupert and Stewart areas provided material for major infrastructure upgrades at the Ridley Island terminal expansion (Figure 2.8), the port of Stewart and the Canadian National Railway between Terrace and Prince Rupert. The Ridley Island quarry produces amphibolite grade metasediments to be used at the port expansion. The **Tyee** quarry (MINFILE 103I 202) produces epidote bearing granite for dimension-stone. The **Kwinitsa** quarry (MINFILE 103I 011) produces silliminite grade geinss for CN rail-bed material and rip-rap stone used to protect Highway 16. At least one quarry in the Stewart area produced granitic material interpreted to be associated with construction activities at Stewart Bulk terminals.



Figure 2.6. Mine Inspectors Doug Flynn and Rebecca Misener take a closer look at the former flour bagging plant now re-fitted and reinforced for barite at the Fireside mine site



Figure 2.7. Nephrite jade lenses hosted in a serpentinite shear zone at the Dynasty Jade quarry.



Figure 2.8. Expansion of the Ridley Island coal terminal is underway and receives fill material from nearby industrial quarries.

2.3 MINE DEVELOPMENT AND EVALUATION PROJECTS

2.3.1 Red Chris

The Red Chris Development Company Ltd, a wholly owned subsidiary of Imperial Metals Corporation, received their Mines Act Permit May 4th and began construction days after on their **Red Chris** (MINFILE 104H 005) copper-gold project located 80 km south of Dease Lake. Major infrastructure construction dominated 2012 activities with a goal of completion by early 2014. Milestones achieved this year include: the opening of a 487 person construction camp, excavation and pouring of some concrete for the process plant, road construction into the Tailings Impoundment Area (TIA), development of a gravel resource within the TIA to be used in concrete works and excavation for the mill site and truck shop. Detailed mine engineering continues with approximately 65% complete at year end. Long lead time equipment including the Semi-Autogenous-Grinding mill, ball mill and a primary crusher have been procured. The 30 000 tonne per day mill is scheduled to be commissioned in 2014 harmoniously with the completion of the Northwest Transmission Line.

Proven plus probable reserves remain at 301.549 Mt with an average grade of 0.359% Cu + 0.274 g/t Au. A technical report released in February included results from 62 diamond drill holes totalling over 69 thousand metres completed since May 2010 and is the first estimate to include a silver resource. Updated Measured plus indicated resources (inclusive of reserves) increased by 103% totalling 1218 Mt grading 0.327% Cu, 0.327 g/t Au and 1.114 g/t Ag using a 0.2% eCu cut-off grade. Additional inferred resources total 785 Mt grading 0.333% Cu, 0.347 g/t Au and 1.145 g/t Ag at a 0.2% eCu cut-off grade.

Exploration activities included five deep drill holes totalling 5415 m spread amongst the Gully, Saddle and East zones. Approximately 1 km southwest of the current pit design at the Gully zone, broad Cu-Au intercepts returned from late 2011 drilling were followed up by two deep drill holes (Figure 2.9). Mineralization style in the highest grade intervals of drill hole RC12-580 show similar breccia fragments, alteration and mineralization to the high-grade feeder system in the deep portions of the East Zone. These observations support current exploration models of a separate feeder system beneath the Gully zone. Exploration activities were suspended in May to maximise available resources for construction. Best drilling intercepts released in 2012 are summarized in Table 2.2

The Red Chris deposit comprises the adjoining Main, East and Saddle zones within a 204 Ma monzodiorite stock. The stock intrudes Stuhini Group volcanic rocks to

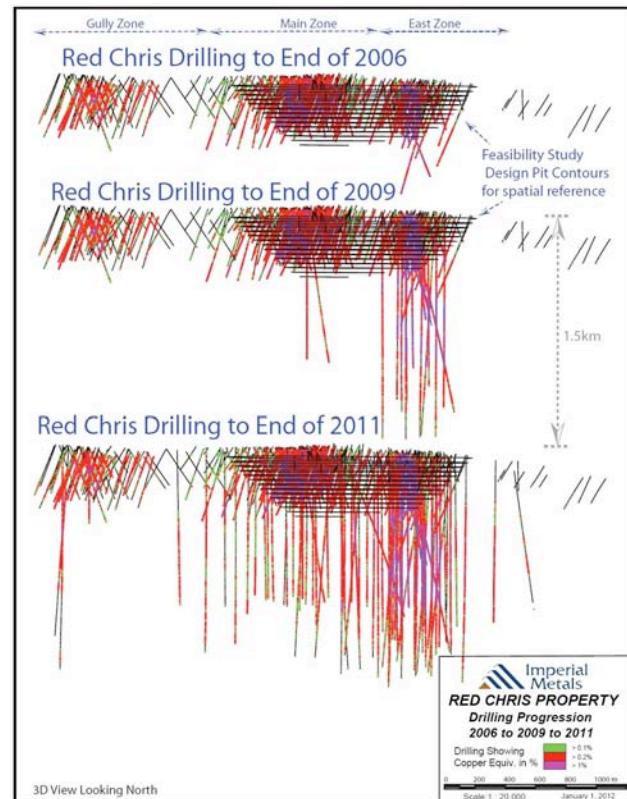


Figure 2.9. Red Chris deposit growth from 2006 to 2011. Courtesy of Imperial Metals.

the north and is overlain by, and faulted against, Bowser Lake Group sedimentary rocks to the south

The East zone (EZ) fault controls both the east-northeast trending Red stock and the most intense quartz vein development, which, in turn, corresponds with the best copper and gold grades. At depth in the porphyry system, alteration comprises K-feldspar, biotite, magnetite and anhydrite. Closer to surface within the planned open pit, alteration comprises sericite, pyrite, quartz, hematite, ferrodolomite and chlorite. The occurrence of volcanic rocks between the Main and East zones suggest the Red stock has at least two intrusive centres. Zoning of gold to copper ratio and interpretation of a deep penetrating IP survey suggest a third intrusive centre may lie west of the Main zone, beneath the Gully zone.

2.3.2 Northwest transmission line and hydro projects

Construction is well under way on the 344 km Northwest Transmission Line (NTL) that will provide 287 kilovolt service roughly half way up the center of northern British Columbia from Terrace to Bob Quinn Lake. BC Hydro awarded Valard Construction and Burns & McDonnell the design and build contract and began right-of-way and access clearing in January 2012.

TABLE 2.2. RED CHRIS EXPLORATION DRILLING HIGHLIGHTS

Drill Hole	Zone	Depth from (m)	Depth To (m)	Interval Length (m)	Copper %	Gold g/t	Silver g/t
RC11-477	Gully	172.5	980.0	807.5	0.31	0.29	1.61
RC11-539	Gully	275.4	862.5	587.1	0.41	0.41	2.05
RC12-580	Gully	335.0	940.8	605.8	0.39	0.43	2.00
Incl	Gully	495.0	542.5	47.5	1.00	1.06	3.87
Incl	Gully	627.5	722.5	95.0	0.77	0.73	2.69
RC12-583	Saddle	549.5	1057.5	508.0	0.24	0.22	0.58

Construction progress was visible (Figure 2.10) from highway 37 throughout the year and remains active in to the winter months with an estimated 280 people directly employed. The \$561 million project is the longest power line project in BC Hydro’s capital plan and is scheduled to be in service by spring 2014. Several hydro power projects throughout the northwest are under construction to feed into the NTL. These include three projects in the Iskut River area owned by Alta Gas. The 195 MW Forest-Kerr run-of-river project is scheduled to be completed mid 2014, the McLymont Creek and Volcano projects are in pre-construction stages. The Long Lake hydro project is located approximately 25 km north of Stewart and owned by Regional Power Inc partnered with Premier Power Corporation. Long Lake will produce 31 MW and is scheduled to be completed by late 2012.

2.3.3 KSM (Kerr – Sulphurets-Mitchell)

Seabridge Gold Inc is preparing to submit an Environmental Assessment package by early 2013 for the KSM project is located 65 km north of Stewart. KSM is comprised of four defined deposits over roughly 10 km



Figure 2.10. Northwest Transmission Line right-of-way clearing and pole foundation near Bell 2.

strike length south to north: Kerr, Sulphurets, Mitchell and Iron Cap. Combined, these add up to one of the largest undeveloped gold-copper porphyry systems in North America with proven plus probable reserves totalling 2 164 Mt averaging 0.55 g/t Au, 0.21 % Cu, 2.74 g/t Ag and 44.7 ppm Mo. Measured plus indicated resources (inclusive of reserves) total 2 779.9 Mt grading 0.55 g/t Au, 0.21% Cu, 2.9 g/t Ag and 55 ppm Mo. Inferred resources total 1 127.2 Mt grading 0.41 g/t Au, 0.17% Cu, 3.0 g/t Ag and 50 ppm Mo. An updated preliminary feasibility study (PFS) released in May incorporated feedback from various stakeholders and resulted in multiple project improvements. 1) Combination open-pit and block-cave mining methods will be employed on the Mitchell deposit and underground panel caving in the Iron Cap deposit. These changes decrease the project strip ratio from 2.7 to 1.5 and eliminate 2.3 billion tonnes of waste rock stripping and storage. 2) Access route from highway 37 has been re-routed to reflect feedback from the Nisga’a Nation and First Nations. 3) Fine crushing and grinding facilities have been re-located to the Teigen site where primary crushed ore will be transported via conveyor through the Mitchell tunnel. 4) The Tailings facility will be built to best practice standards of the International Cyanide Management Code which includes lining of part the facility but not a current requirement under existing regulations. 5) Engineering for the tailings management facility and project water management has been completed to a Feasibility level. A proposed project layout map is shown in Figure 2.11

The KSM project is planned to operate over a 55 year mine life with an estimated capital cost of \$5.3 billion. The initial 25 years would be an open pit mining operation processing 130 000 tonnes per day (tpd) decreased to 90 000 tpd for the remaining 30 years. Ore would be fed to a floatation mill and produce a gold-copper-silver concentrate and then trucked to the Stewart port facility. Metallurgical testing indicates a salable, clean 25% copper concentrate can be produced. Separate molybdenum concentrate and gold-silver dore’ would be produced at the KSM processing facility.

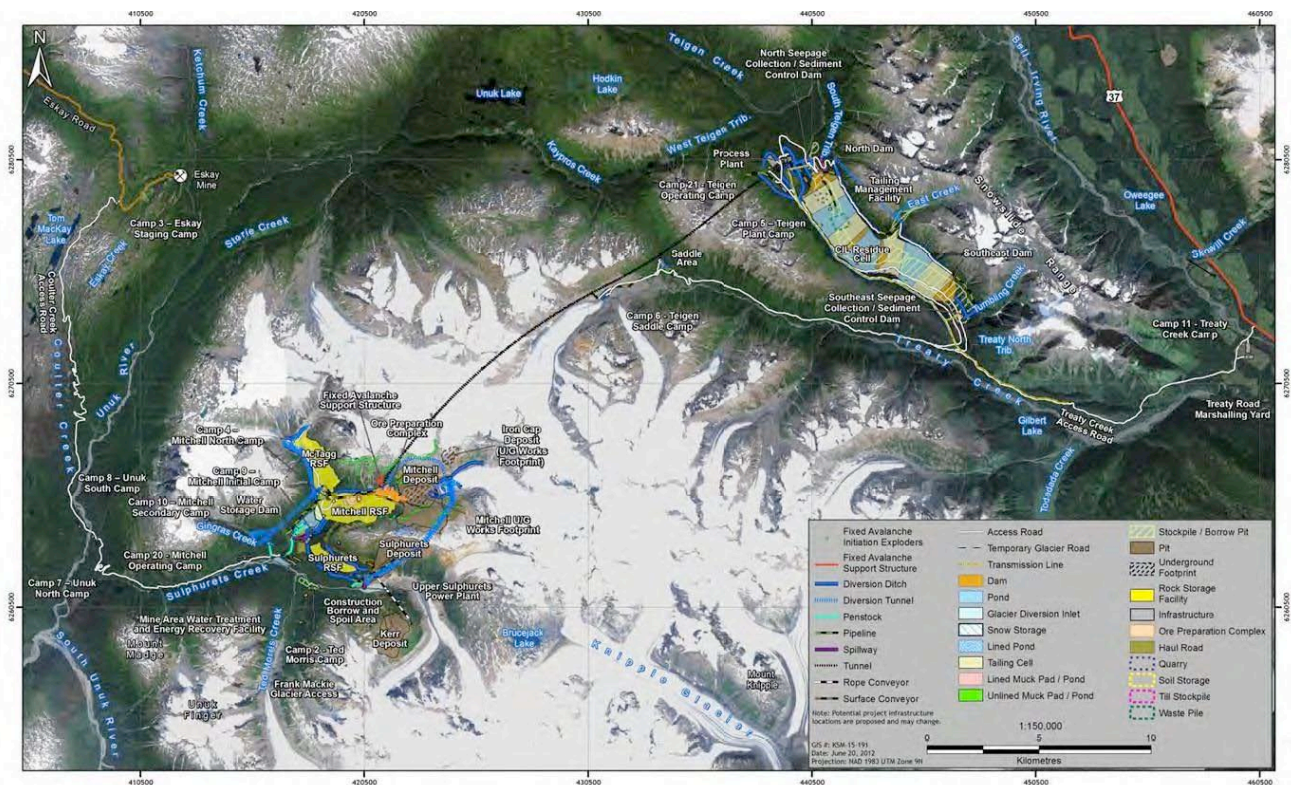


Figure 2.11. Proposed site layout of the KSM project. Courtesy of Seabridge gold.

2012 drilling comprised of exploration and geotechnical objectives totalling 23 442 m. Exploration targets were generated from magneto telluric (MT) geophysical surveys conducted in 2011 and used large porphyry deposit analogs such as Grasberg, Bingham Canyon and Oyu Tolgoi. Resistivity anomalies coupled with a high grade core zone hypothesis, open to depth deposit geometry and higher temperature mineral and alteration assemblage vectors led to successfully identifying higher grade copper-gold mineralization. The discovery of the Camp Zone located between the defined Kerr and Sulphurets deposits identified unanticipated epithermal-style, poly-metallic mineralization. Best intercept was returned from drill hole C-12-03: 98.7 m averaging 2.11 g/t Au plus 2.5 g/t Ag from 151.3 m. Multiple other targets at McQuillin, Deep Iron Cap and Mitchell North proved interesting and warrant follow up drilling but the possible game-changing Deep Kerr zone was drilled in late summer and will be aggressively followed up in 2013.

Drill hole K-12-21 located on the southern extent of the defined Kerr deposit returned 473.0 m grading 0.90% Cu and 0.31 g/t Au from 20 m. Two other holes testing Deep Kerr also returned significantly higher grades than currently in the Kerr Zone reserves (242 Mt grading 0.24 g/t Au, 0.45% Cu and 1.6 g/t Ag) indicating the Deep Kerr zone could add substantial metal value and a positive influence on overall project economics.

The KSM porphyry deposits are associated with the Mitchell intrusions; high level diorite to monzonite plugs and dikes that intrude folded and faulted volcanic and sedimentary rocks of the Hazelton and Stuhini groups. The principal Mitchell zone is exposed in an erosional window below the Mitchell thrust fault; the upper fault sheet contains the displaced segment of the deposit, the Snowfield zone, 2 km east on the adjoining property owned by Pretium Resources. The KSM deposits show broad metal zonation: high copper – low gold grades in the south at Kerr to the inverse at Mitchell and Iron Cap. The zonation could be evidence of higher temperature and greater system depth at Kerr to lower temperature and higher level emplacement at Mitchell. The Mitchell zone (Figure 2.12) comprises schistose rocks with abundant sericite, disseminated pyrite and a strongly deformed quartz-pyrite-chalcopyrite stockwork containing remarkably uniform copper and gold grades.

Iron Cap is in the upper sheet of the Mitchell thrust fault, and below the Sulphurets thrust. Chalcopyrite occurs as fine disseminations and quartz-pyrite veins. Epithermal style mineralization in quartz stockwork and breccias contain higher gold and silver grades are also present at Iron Cap. Original textures are commonly obliterated by intense, pervasive silicification. This mineralization style is similar to zones at the adjacent Brucejack property.

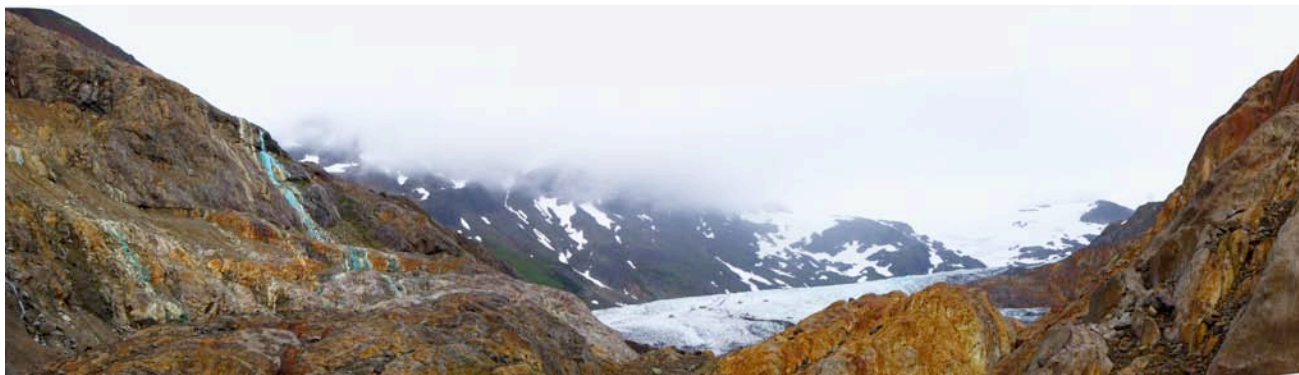


Figure 2.12. Looking east towards the Mitchell Glacier from the center of the Mitchell deposit. Malachite staining (left side) is precipitated from ground water flowing out of the Mitchell Fault. Early season drill pads (mid-center) melt resistively relative to surrounding snow and ice due to insulating straw. The Mitchell Glacier has retreated over 200 m since Seabridge began drilling the deposit in 2006.

2.3.4 Brucejack

High-grade gold-silver continues to be identified by Pretium Resources Inc at their **Brucejack** project located approximately 65 km north of Stewart and 5 km west of the Kerr Deposit of the KSM multi-deposit system. The 2012 drilling program was the largest in the region totalling 105 769 m in 298 diamond drill holes. The primary objective was to increase size and confidence of the high-grade resource at the Valley of the Kings (VOK) zone and gain a solid geological understanding of controls on mineralization. At 12.5 m centers, (Figure 2.13) the density of drilling has returned adequate data to produce a greatly improved geological understanding and an updated mineral resource estimate. Indicated resources total 16.1 Mt averaging 16.4 g/t Au and 14.2 g/t Ag; inferred resources total 5.4 Mt averaging 17.0 g/t Au and 15.7 g/t Ag. Both resource estimates are based on 5.0 g/t gold-equivalent cut-off grades. Best intercept to date on the property was drilled this year in SU-452: 0.5 m grading 41 582 g/t Au plus 27 725 g/t Ag from 201.47 m (Figure 2.3); part of a broader 10.71 m grading 2 393 g/t Au plus 1 605 g/t Ag from 198.79 m. To date, 66 intervals from VOK have returned grades over 1 000 g/t Au; 41 of which were drilled in 2012. The VOK zone is showing continuity to the Galena Hill zone and has been extended over 800 m along strike and remains open in all directions including to the west, across the Brucejack Fault. Additional West Zone measured plus indicated resources updated in April total 4.9 Mt averaging 5.85 g/t Au plus 267 g/t Ag. Additional inferred resources total 4.0 Mt grading 6.44 g/t Au plus 82 g/t Ag.

Due to the high-grade nature of the VOK deposit, strict modelling methods were used to mitigate over-smoothing of grades or “the nugget effect” in the resource estimate. The method included separating gold grades into two representative populations: 1) pervasive, background low grade up to 5 g/t Au and 2) discrete high-grade up to 421 g/t Au. Ordinary kriging on 10 m x 10 m x 10 m blocks was used to model the low grade populations while multiple indicator kriging was to

estimate high-grade populations and control the skewness of the data. The multiple indicator kriging does not exclude the extreme grades but does limit the influence of the high-grade sample in the block model. High and extreme grades are incorporated into a mathematical model then used to populate discrete sized blocks of high-grade mineralization which are incorporated into parent blocks twice the size of the low grade blocks, therefore limiting the influence of high grades while still acknowledging them. Further to the conservative estimation, areas of dense drilling data that approach the measured resource requirements outlined by the Canadian Institute of Mining have been retained in the indicated category until detailed underground sampling is done.

Underground re-development of the historic West Zone decline is well underway with slashing activities expanding the decline to 5 m x 5 m dimensions to the 1330 m level. From the 1314 m level, a new 450 m decline will be excavated to the 1270 m level in the VOK zone where a 10 000 tonne bulk sample will be mined in mid 2013 to validate continuity of high-grade mineralization. A feasibility study is expected to be completed by Q2 2013 and plans for a 2700 tonne per day underground mine. Planned mining method will be a combination of longitudinal and transverse long-hole stope mining followed by cemented paste backfill. Road access from highway 37 to the site is scheduled to be completed by the end of 2012.

Brucejack sits on the eastern limb of the broad northerly trending McTagg anticlinorium; a regional scale, mid-Cretaceous structural culmination in the Western Skeena Fold Belt. Brucejack property stratigraphy comprises of Triassic Stuhini Group sediments and volcanics unconformably overlain by Jurassic Hazleton Group volcanics followed by Bowser Lake Group sediments. Property lithologies generally dip moderately and young to the east and are variably altered. Lithologies are cut on the west side of the property by a topographic lineament, the Brucejack Fault (Figure 2.14) of uncertain displacement and interpreted history of



Figure 2.13. Drill pads spaced at 12.5 m at Brucejack's Valley of the Kings zone.



Figure 2.14. Overview of the Brucejack Property looking north, the Brucejack Fault is the lineament trending north-northwest. The VOK zone is at the center of the photo.

long-lived re-activation. Alteration is dominated by pervasive strong to intense quartz-sericite-pyrite replacement up to several hundred meters or more wide and approximately 5 km strike length. Most of the five defined mineral resources (West Zone, Valley of the Kings, Bridge Zone, Gossan Hill and Shore Zone) are within the intensely altered zone and associated with vein-stockwork systems of varying intensity. Stockworks display good continuity and in rare cases range up to 10 m wide. High-grade zones are either on the margins or contained within a zone of bulk low-grade mineralization up to several grams per tonne gold. Bulk low grade mineralization tends to be associated with disseminated anhedral pyrite, euhedral pyrite is barren.

Mineralization at the Brucejack property is hypothesized to represent a deformed transitional meso – epithermal porphyry-associated stockwork in pervasively altered lower Hazelton Group rocks; possibly associated with the high levels of the KSM porphyry system.

2.3.5 Tulsequah Chief

Chieftain Metals Inc is in the final stages of permitting for the past producing **Tulsequah Chief** mine (MINFILE 104K 002) located 100 km south of Atlin. Re-routing the road access from Atlin required an amendment to their existing Environmental Assessment (EA) and Special Use Permit (SUP), both inherited from previous owner Redfern Resources. The new road route begins from the terminus of the Warm Bay road and has significantly reduced environmental and cultural impacts. The new route is shorter by 35 km from the previously approved route, decreases the number of stream crossings by 24, avoids sensitive caribou habitat and eliminates the crossing of the culturally significant Nanika Heritage Trail. The SUP amendment process has been running parallel with the EA amendment process and is expected to be received by year end.

The water treatment plant (Figure 2.15) was commissioned in late 2011 and continued to operate through the spring freshet until late June. Treatment of the mine-impacted water showed a 98% reduction of metal loads and consistently achieved discharge levels below the Metal Mining Effluent Regulations. However, due to plant efficiency issues and higher than anticipated costs, operations were suspended in June while Chieftain reviewed plans to increase operational efficiencies.

A feasibility study released in December outlines a 2000 tonne per day underground mining operation with an estimated 9 year mine life and \$439.5 million initial capital expenditure. Mining will be conducted primarily by sub-level stoping with minor mechanized cut-and-fill stoping followed by paste and waste-rock backfill. Probable reserves total 6.45 Mt grading 2.30 g/t Au, 81.38 g/t Ag, 5.59% Zn, 1.12% Cu and 1.04% Pb. Processing will consist of a primary crushing plant, grinding and flotation plant, effluent treatment plant, and backfill plant. Processing will produce copper, lead and zinc concentrates and gold dore'. Project construction is



Figure 2.15. The water treatment plant at Tulsequah Chief reduced metal loading by 98%.

planned to commence in spring 2013 followed by site construction in late 2014 and commissioning by late 2015.

China CAMC Engineering Co. Ltd. (CAMCE) and its majority owned Procon Holdings Inc (Procon) have signed a Memorandum of Understanding with Chieftain to acquire a 30% interest in the Tulsequah Project for a cash contribution of equal to 30% of the net present value of the project. Chieftain will own the remaining 70%. An engineering, procurement and construction contract with CAMCE to develop the project will be followed by a mining contract with Procon for the “life of mine”. CAMCE is arranging to secure long-term debt for up to 70% of the project financing from a Chinese institution while also seeking an arrangement of 30% of zinc, copper and lead concentrates from the project.

Tulsequah Chief is a Kuroko type volcanogenic massive sulphide deposit in which numerous stacked sulphide lenses are present within a rhyolite-dominated sequence of volcanic flows and fragmental units. Mineralization in all lenses consists of massive to semi-massive pyrite, chalcopyrite, sphalerite and galena. Accessory ore minerals include tetrahedrite-tennantite and rare native gold. Gangue mineralogy consists of barite, chert, gypsum, anhydrite, carbonate quartz, chlorite and sericite and silicified volcanoclastics.

2.3.6 Kitsault

Avanti Mining’s past producing **Kitsault** (MINFILE 103P 120) molybdenum mine (Figure 2.16) is located 140 km northeast of Prince Rupert and is in the late stages of the Environmental Assessment process. A decision is expected in early 2013. The EA package was formally accepted by federal and provincial regulators in late April 2012. Avanti released an updated measured plus indicated resource estimate in April totalling 321.8 Mt grading 0.071% Mo, 236 g/t Pb and 4.8 g/t Ag with additional inferred resources totalling 317.6 Mt grading 0.041% Mo, 237 g/t Pb and 4.6 g/t Ag.

Mine life is forecast to be 16 years with an initial capital cost of \$837 million.

Kitsault operated from 1967–72 and again from 1981–82, milling a total of 13.4 Mt grading 0.101% Mo. Total past production was 13.6 tonnes Mo. The site is still serviced by a mine access road and power.

The Kitsault property is located approximately within the western margin of the Bowser Basin as part of the Intermountain tectonic belt a few kilometres east of the Coast Plutonic Belt contact within the Lime Creek Intrusive Complex. Mineralization is hosted within multiphase diorite, quartz monzonite and younger felsic units. Cross-cutting relationships indicate multiple mineralizing events occurred. Geometry of mineralization appears to be annular in plan and arcuate in section.



Figure 2.16. The past producing Kitsault molybdenum mine from 1967-1972 and again from 1981-1982 and milled 13.4 Mt grading 0.101% Mo.

2.3.7 Kutcho Creek

Capstone Mining Corporation continues to gather baseline data for their **Kutcho Creek** copper-zinc project (MINFILE 104I 060) Environmental Assessment package submission expected in 2013. Current activities are limited to basic site engineering and preparations for EA submission. An updated mine design includes a starter open pit at the Main Zone and underground mining methods employed at the Esso zone.

Probable mineral reserves total 10.44 Mt of averaging 2.01% Cu, 3.19% Zn, 34.61 g/t Ag and 0.37 g/t Au. Measured and indicated resources (inclusive of reserves) total 11.28 Mt averaging 2.19% Cu, 3.28 % Zn, 36.7 g/t Ag and 0.39 g/t Au. Additional inferred resources total 1.09 Mt averaging 1.74% Cu, 2.04% Zn, 30.7 g/t Ag and 0.35 g/t Au. Proposed mine life is 12 years with a processing capacity of 2500 tonnes per day producing separate copper and zinc concentrates. Capital costs are an estimated \$ 213.5 million, which includes a Liquefied Natural Gas power plant making the project independent of the Northwest Transmission Line.

The Kutcho property contains three known Kuroko-type volcanogenic massive sulphide (VMS) deposits. These are aligned in a westerly plunging linear trend and from east to west they are referred to as the Main, Sumac, and Esso deposits. The largest of the three, the Main deposit, is exposed near the eastern end of this trend, whereas the Esso deposit occurs at depths about 400-600 metres below surface at the western or down plunge end of the trend as it is currently known. The Sumac deposit lies between the Main and Esso deposits both laterally and vertically, but has seen only cursory drilling. The mineralized trend is open down plunge but is poorly explored.

2.3.8 Granduc

The past producing Granduc copper-gold-silver massive sulphide deposit (MINFILE 104B 021) received significant exploration and evaluation during 2012 completed by Castle Resources Inc. The former mill site and portal (Figure 2.17) are located 35 km north of Stewart at the north terminus of the Granduc Mine road where the refurbished 17 km tunnel provides access to the underground deposit. An updated resource estimate of the combined Main and North Zones was released in December using a 0.8% copper equivalent cut-off grade. Measured plus indicated resources total 11.32 Mt grading 1.47% Cu, 0.17 g/t Au and 12.4 g/t Ag. Additional inferred resources total 44.63 Mt grading 1.43% Cu, 0.19 g/t Au and 10.7 g/t Ag. The Main Zone contains measured resources totalling 5.16 Mt averaging 1.58% Cu and an indicated resource of 2.95 Mt grading 1.39% Cu. Main Zone inferred resources total 30.52 Mt grading 1.40% Cu. The North Zone inferred resource is 14.11 Mt grading 1.49% Cu.

Site activities included 24 000 m of diamond drilling (Figure 2.18) with 32 holes focussed on following up high-grade copper intercepts the South Zone and North Zone drilled in 2011. Drilling at the South zone tested above the 2011 resource and confirmed high grade copper mineralization continues. At the North zone, 100 m step-out drilling gained better orientation of mineralization originally discovered by previous mine operators Esso and Newmont. Other site activities included underground re-development on the 2600 level consisting of installing

ventilation, communications, power, establishing drainage and removal of historic rail. Castle Resources intends to release a preliminary economic assessment and enter the Environmental Assessment process in early 2013.

Granduc is a Triassic, Besshi -type volcanogenic massive sulphide deposit with tabular ore zones deformed by at least three phases of folding. Massive sulphide assemblages consist of pyrite, pyrrhotite, chalcopyrite with lesser interstitial sphalerite and galena. Massive sulphides occur at the contact between mafic pillow basalts and tuffs and overlying chert and argillite.

2.3.9 Schaft Creek

Copper Fox Metals Inc continued exploring extensions and testing geophysical anomalies of the **Schaft Creek** (MINFILE 104G 015) copper-gold-silver-molybdenum project located approximately 60 km northwest of Bob Quinn Lake. An updated resource estimate announced in May reported measured resources totalling 146.6 Mt grading 0.31 % Cu, 0.24 g/t Au, 1.78 g/t Ag and 0.017% Mo; indicated resources totalling 1 081 Mt grading 0.26% Cu, 0.19 g/t Au, 1.69 g/t Au and 0.017 g/t Ag and inferred resources totalling 597.1 Mt grading 0.22% Cu, 0.17g/t Au, 1.65 g/t Ag and 0.016% Mo. Copper Fox is expected to release a feasibility study by the end of 2012.

Ground activities included geophysical surveys, drilling, ground truthing targets, and acquisition of adjoining mineral tenures. A total field magnetic survey



Figure 2.17. Looking west-northwest over the former Granduc mill site towards the Berendon Glacier. This is the portal entrance to the refurbished 17 km Tide Lake Tunnel which serviced the underground mine workings during past operation from 1970 - 1984.



Figure 2.18. Castle Resources drilled 24 000 m in 2012 including these two at the North Zone.

added 2500 line km to the existing surveyed area and helped define targets drilled later in the year. Drilling totaled 2263 m and generally targeted IP signatures similar to those associated with known mineralization in the Schaft Creek trend. Highlight results included 47.0 m grading 0.62% Cu, 0.59 g/t Au, 2.02 g/t Ag and 0.006% Mo from 509.0 m in drill hole CF-427-2012. Further testing returned lesser grades but did increase confidence of interpreted continuity of mineralization and the large scale of the system.

2.3.10 Galore Creek

The **Galore Creek** (MINFILE 104G 090) copper – gold project is co-owned by Novagold and Teck and located approximately 150 km northwest of Stewart. This year’s activities continued to upgrade resource confidence and optimize geotechnical challenges with approximately 25 000 m of drilling. Results of the field program are currently being assembled and reviewed. Other project activities include additional engineering studies, site care and maintenance and baseline environmental monitoring.

Nova Gold’s 50% of the project remains for sale with intentions to have engaged a purchaser by year end. Galore Creek is a late Triassic porphyry copper deposit associated with alkalic intrusive rocks. Proven and probable reserves total 528 Mt averaging 0.59% Cu + 0.32 g/t Au + 6.02 g/t Ag. Additional measured plus indicated resources total 286.7 Mt averaging 0.33% Cu, 0.24 g/t Au and 3.64 g/t Ag. Inferred resources total 346.6 million tonnes averaging 0.42% Cu + 0.24 g/t Au + 4.28 g/t Ag.

2.3.11 Dome Mountain

Metal Mountain Resources Inc wholly owned subsidiary Gavin Mines Inc continued development of their **Dome Mountain** gold mine (MINFILE 93L 276)

located approximately 38 km east of Smithers. The company has determined a mill is needed for the site.

Despite substantial efforts including shipping of approximately 5 000 tonnes of ore, a long term arrangement could not be reached with off-site mill operations. A working group has been assembled and a scoping study is well underway to build a 250 tonne per day mill and acquire the necessary permit amendments. Estimated capital costs and an updated resource estimate will be included in a future pre-feasibility report. On-site milling would result in lower required cut-off grades and therefore extended mine life. Site activities have slowed for the winter season while all focus is applied to the acquisition and permitting of an on-site mill.

Underground development in early 2012 advanced workings to the first cut and fill stope on the 1290 level and produced 1385 tonnes from the Boulder vein; face samples averaged 9.38 g/t Au. Other underground activities included vent raise development and diamond drilling. Surface activities involved completion of additional site infrastructure including fuel storage and distribution system, maintenance shop, installation of a 400 KV generator and road improvement designs for mine traffic. The water treatment plant has been operating smoothly since March and is achieving performance requirements. Metal Mountain entered into an option agreement with Gaurdsmen Resources Inc to acquire 36 mineral tenures adjacent to the Dome project and the 3% NSR associated with the Fedral Creek property.

Dome Mountain comprises eight (or more) gold-bearing orogenic quartz veins within volcanic and sedimentary rocks of the Hazelton Group. The Boulder quartz-sulphide vein is in a fault and itself shows evidence of shearing. Principal ore minerals are pyrite and sphalerite with minor chalcopyrite, galena, arsenopyrite and tetrahedrite. Gold occurs in native form but is rarely visible and is typically associated with pyrite.

2.3.12 Bell and Granisle

X-Strata Copper completed two drill programs in 2012 on their past producing **Bell** (MINFILE 93M 001) and **Granisle** (MINFILE 93L 146) mines located 11 km and 7 km respectively northeast of the village of Granisle. Both drill programs were divided between resource definition, geotechnical and metallurgical objectives. Drilling results were not available. Historic documents indicate over 70 Mt of non 43-101 compliant copper reserves remain in the bottom of the Bell Pit grading 0.23g/t Au, 0.46% Cu plus 0.48 g/t Ag (Figure 2.19). Additional non-43-101 compliant in-situ reserves at Granisle total 119 Mt grading 0.41% Cu plus 0.15 g/t Au using a 0.30% Cu cut-off grade. Mining ceased in 1992 and since then, meteoric water has been filling the pits (Figure 2.20) and water levels are expected to surpass

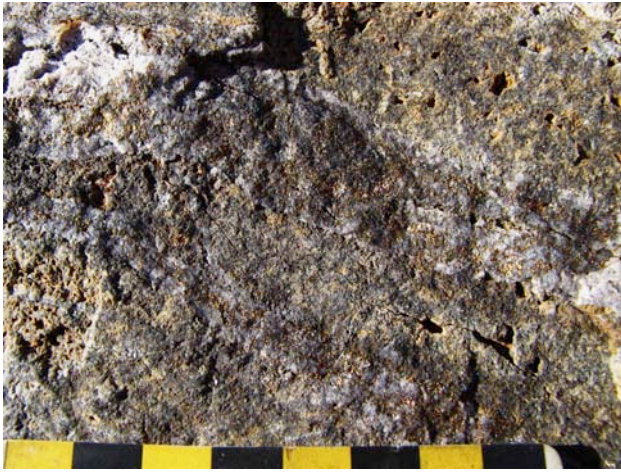


Figure 2.19. Chalcopyrite mineralization from the past producing Bell copper mine. X-Strata is evaluating options surrounding a significant minable reserve at the bottom of Bell along with rising pit water levels.



Figure 2.20. Strong iron oxidation in the Granisle pit walls.

surrounding Babine Lake levels in 3-5 years. During the 2012 summer, a pilot water treatment plant was trialed with positive results.

The Bell mine is hosted in Eocene biotite-feldspar porphyry stocks of the Babine Intrusions and cut by the northwest trending Newman Fault. The Granisle mine is set in a similar geologic setting as Bell but interpreted to be exposed at deeper stratigraphic levels.

2.3.13 Morrison

The Morrison copper gold project (MINFILE 93M 007) is located 70 km northeast of Smithers and owned by Pacific Booker Minerals Inc. An Environmental Assessment package was formally accepted in Q3 2010 and then suspended at day 178 of the 180 day review period. An independent review of environmental baseline data acquired by Pacific Booker was completed and the EA review was complete by late August. On October 1st,

the decision was made to not issue an Environmental Certificate for the Morrison project. Energy, Mines and Natural Gas Minister Rich Coleman and Environment Minister Terry Lake announced "potential long-term risks of the project outweighed the potential benefits to the province."

Measured plus indicated resources total 206.869 Mt grading 0.39% Cu, 0.20 g/t Au and 0.005% Mo. Inferred resources total 56.524 Mt grading 0.40% Cu, 0.21 g/t Au and 0.005% Mo. The deposit is hosted in an Eocene biotite-feldspar porphyry within the Babine Intrusions.

2.3.14 Silvertip

Silvercorp Metals Inc continued evaluation of their **Silvertip** silver-lead-zinc-gold project (MINFILE 1040 038) located approximately 90 km west-southwest of Watson Lake and bounded to the north by the Yukon border. The company is in the process of preparing a Mine Permit application with hopes of receipt in 2013. Access to site was severely restricted in 2012 due to heavy rains washing out numerous river crossings. Site activities were limited this year to visits from independent qualified professionals who then co-authored an updated resource estimate released in July and a preliminary economic assessment (PEA) released in November. Resource estimates are divided between two mineralization zones: 1) the high-grade, Manto-replacement hosted Lower Zone, and 2) the exhalite hosted Upper Zone. Lower Zone indicated resources total 2.45 Mt grading 315 g/t Ag, 5.88% Pb, 6.26% Zn and 0.413 g/t Au with additional inferred resources totalling 1.64 Mt grading 281 g/t Ag, 4.55% Pb, 5.64% Zn, and 0.093 g/t Au. Cut-off grade is 325 g/t silver equivalent. Upper Zone inferred resources total 3.63 Mt grading 39 g/t Ag, 0.65% Pb and 2.36% Zn using a \$25 per tonne cut-off.

The PEA outlines three mining scenarios of variable milling rates and seasonal operations which would cap annual milling at 75 000 tonnes per year. Proposed mining would be an underground drift and fill method with access provided from the existing portal and new declines developed to access the Silver Creek and Discovery Zones. Open pit mining was not fully evaluated in this study due to a high strip ratio and unfavorable topography for waste-rock storage.

2.3.15 Yellow Giant

Banks Island Gold Ltd has given production notice to Imperial Metals Corp regarding the development of the Yellow Giant gold project (MINFILE 103G 021) located on Banks Island, approximately 120 km south of Prince Rupert. Banks Island Gold Corp holds 100% interest of the property and as stipulated by option agreement, Selkirk (bought by Imperial) has the right by "Back-In-

Option” to re-acquire 51% of the property by funding 2.5 times the amount Banks Island has spent on the project to date.

Project activities completed in 2012 included drilling, metallurgical testing, geological mapping, and prospecting. Multiple conductors identified by a 2011 VTEM airborne geophysical survey confirmed areas of known mineralization and generated follow up targets in unexplored areas. Drilling in 2012 totalled 3801m in 30 holes in 3 zones: 1923 m in 9 holes at the Tel Zone, 819 m in 9 holes at the Bob zone and 1059 m in 12 holes at the Discovery zone. All zones returned significant gold grades with best intercepts summarized in Table 2.4. Bench-scale metallurgical tests completed on composite samples from the Bob, Tel and Discovery zones returned 90% average gold recovery from an average 109 g/t Au concentrate.

Banks Island Gold Ltd has procured some mining equipment in preparation for a very active year in 2013. Purchased equipment includes two floating, amenity inclusive camp facility barges with up to 50 person capacity and a re-furbished dense media separation plant. Equipment will be re-located to Banks Island to support proposed 2013 activities including bulk sampling at the Bob and Kim zones, pilot mining at the Tel zone, exploration drilling, road construction and environmental baseline monitoring. Off-site activities will include site engineering and metallurgical testing.

Yellow Giant consists of four zones containing 43-101 compliant resources updated in October 2012 and outlined in Table 2.5. Mineralization occurs as quartz-carbonate bearing pyrite-pyrrhotite massive sulphide veins with minor amounts of interstitial native gold, sphalerite and galena (Figure 2.21). Higher grade shoot geometry measures up to 50 m apparent strike length and over 150 m deep. Veins are controlled by steeply dipping first and second order shear structures and range from 0.5 to 5.0 m wide. Known mineralization is closely associated with the Arseno and Hepler regional faults which separate Ordovician to Triassic metasediments from mid-late Jurassic intrusives.

2.4 MINERAL EXPLORATION

Table 2.3 provides a summary of 2012 projects.

2.4.1 Porphyry Copper projects

“Porphyry copper deposits in the northwest commonly contain significant gold or molybdenum. Few deposits contain all three metals in economically significant amounts. Prospects in the Iskut-Stikine district developed in late Triassic to early Jurassic intrusions within the Stikine terrane prior to accretion to North America. Pre-accretion porphyry prospects are primarily copper-gold deposits; molybdenum is significant only at Schaft Creek. The intrusions are sub-alkalic, potassium

rich and intermediate composition, typically monzonites and their volcanic equivalent. Potassium feldspar porphyritic rocks are common. Alkalic rocks, syenite and pseudoleucite-bearing trachyte characteristic of the Galore Creek deposit represent an end-member composition. Some porphyry deposits in the Stikine district have an extremely high gold to copper ratio and are referred to as gold-copper porphyries. This includes the porphyries at KSM and Bronson Slope deposits.

Porphyry copper-molybdenum prospects predominate in the Skeena region. Some copper-gold prospects occur but the gold content is appreciably less relative to the Iskut-Stikine district. Skeena region porphyry prospects are all contained in post-accretion intrusions including the extensive late Cretaceous Bulkley and more localized Eocene Nanika and Babine calkline intrusions. The three suites have separate distribution patterns but all occur within the transverse geologic feature known as the Skeena Arch. The Huckleberry deposit is related to a Bulkley intrusion.” (Revised from Wojdak, 2010)

2.4.1.1 Porphyry Copper-gold Projects in Stikine Terrane, Iskut District

With the construction of the Red Chris Mine in full force, many other companies are exploring for similar deposits in the area. Broad regional-scale generative programs were completed by large companies including Teck and Hunter Dickinson Inc. Each company acquired thousands of square kilometers of mineral claims and conducted abundant geochemical sampling, prospecting, mapping and some geophysical surveys; complimentary to recent GeoScience BC regional Quest Northwest programs. Dozens of new showings of visible copper mineralization have been reported and will likely be followed up in 2013. Smaller tenure holders in close proximity to Red Chris include Colorado Resources Ltd and Victory Ventures Inc who are following up the **Eldorado** (MINFILE 104H 026) and **Capau** (MINFILE 104H 036) prospects respectively with geophysical and geochemical surveys.

West Cirque Resources identified porphyry style copper-gold mineralization 68 km south of Dease Lake and 25km northwest of Red Chris at their **Castle** (MINFILE 104G 076) project jointly held in part with Bearclaw Capital Corp. A formerly unknown deposit type associated with a 5.5 km long alteration zone and coincident Au-Cu geochemistry gave West Cirque ample reason to follow up. Reconnaissance ground truthing and prospecting completed in 2011 identified porphyry style mineralization east of historic drilling and were the initial basis for generating drill targets for 2012 (Figure 2.22). Of the Six holes totalling 1777 m, five returned significant gold-copper values. Drill hole CA12-05 returned 34 m grading 1.015 g/t; CA12-04 returned 14 m grading 0.425 g/t Au plus 0.20% Cu. Mineralization is hosted primarily in monzonite - monzodiorite intrusive rocks and occurs mainly as pyrite and chalcopyrite

TABLE 2.3. SELECTED EXPLORATION PROJECTS, SKEENA REGION, 2012

Property	Proponent	MINFILE	Commodity	Deposit Type	Work (Proposed) Actual
Babine (Astorius)	Astorius Resources Ltd	093L 209	Cu	Porphyry	GC, IP, AB-MG, G,
Ball Creek	Blue Gold Mining	104G 018	Cu, Au	Porphyry	DD (4 108 m,
Bell Copper	Xstrata Copper Canada Ltd	093M 001	Cu, Au	Porphyry	DD, GP, GD, MS,
Bronson Trend	Snip Gold Corp.	104B 077	Au, Cu, Ag	Porphyry	DD (2 437 m, 9 holes), BPEM
Brucejack	Pretium Resources Inc.	104B 193	Au, Ag	Porphyry	DD(105 769 m 298 holes), GD, G, GC, UG (500 m slash)
Buck	Quartz Mountain Resources Ltd	093L 009	Au, Ag, Zn, Pb	Vein / Breccia	G
Capau	Victory Ventures Inc	104H 036	Au, Cu, Ag	Porphyry	IP, GC, AB-MG
Cassiar Gold	China Minerals Mining Corp	104P 012	Au	Vein / Breccia	DD (8 197 m, 53 holes)
Cassiar Jade	Dynasty Jade Ltd.	104J 057	Jade	Other	Jade extraction
Cassiar Jade	Cassiar Jade Contracting	104P 005	Jade	Other	Jade extraction
Castle	West Cirque Resources	104 G 076	Au, Cu	Porphyry	DD (1 777 m, 6 Holes), IP, MG,
Clone	Teuton Resources Corp & Canasia Industries Corp	103P 251	Au	Vein / Breccia	OP-BU
Coles Creek	Callinan Mines Ltd.	93E 041	Cu, Au, Ag	Porphyry	DD, AB-GP, G
Columario	Argonaut Exploration Inc.	103I 077	Au	Vein / Breccia	DD (725.4 m, 4 holes), G, Corporate
Deer Horn	Deer Horn Metals	093E 019	Au, Ag, Te	Vein / Breccia	G, GC
Dilworth - Big Missouri	Ascot Resources Ltd.	104B 044	Au, Ag	Vein / Breccia	DD (36 942 m, 166 holes), G, Corporate
DOK	Boxxer Gold Corp	104G 043	Cu, Au, Ag	Porphyry	G, GC,
Dolly Varden	Dolly Varden Silver Corporation	103P 188	Ag	Vein / Breccia	DD (1 728 m, 6 holes), AB GP (ZTEM, 733 line km), G, GC, Corporate, EN, UG (rehab)
Dome Mountain	Gavin Mines Ltd	093L 022	Au	Vein / Breccia	DD, Corporate, EN, UG,
Eagle, Mcbride, Pitman	Teck Resources Limited		Cu, Au	Porphyry	Regional G, GC,
Eaglehead	Carmax Explorations Ltd.	104I 008	Cu, Mo	Porphyry	Corporate
Eldorado	Colorado Resources Ltd	104H 026	Cu, Au	Porphyry	IP, GC,
Engineer	BC Gold Corp.	104M 014	Au	Vein / Breccia	Corporate, M, UG (dewatering) G,
Fireside	Fireside Minerals Ltd.	094M 003	Barite	Other	RC, G,
Four Js	Rotation Minerals Ltd. / Teuton Resources Corporation	104B 124	Au, Ag, Cu	Vein / Breccia	DD (1 345 m, 25 holes), GC, TR
Galaxie	Quartz Mountain Resources Ltd		Cu, Au	Porphyry	G, GC,
Galore Creek	Galore Creek Mining Corp.	104G 090	Cu, Au	Porphyry	DD (25 000 m), EN, G, GD
GJ (Kinaskan)	Teck Resources Limited	104G 034	Cu, Au	Porphyry	(IP-Mag, 100 km; ddh)
Gnat Pass	Quartz Mountain Resources Ltd	104I 001	Cu, Au	Porphyry	DD
Golden Eagle	Troymet Exploration Corp	104M 044	Au	Vein / Breccia	(IP; ddh)
Granduc	Castle Resources Inc.	104B 021	Cu, Au, Ag	Massive Sulphide	DD (24 000 m), UG, EN, Corporate
Groundhog	Atrum Coal	104A 078	Anthracite	Metallurgical Coal	DD (4 992 m, 15 holes),

TABLE 2.3 (continued)

Property	Proponent	MINFILE	Commodity	Deposit Type	Work (Proposed) Actual
Heart Peaks	Colorado Resources Ltd	104K 084	Au	Vein / Breccia	G, GC
High	Teuton Resources Corporation	104B	Au	Vein / Breccia	DD (1 346 m, 3 holes)
High Gold	Argonaut Exploration Inc.	093L 076	Cu, Au	Vein / Breccia	Corporate
Homestake Ridge	Bravo Gold Corp.	103P 216	Au, Ag, Zn	Vein / Breccia	DD (4 743 m, 13 holes), EN, G, Corporate
Huckleberry Mine	Huckleberry Mines Ltd.	093E 037	Cu, Mo	Porphyry	DD, (5 141 m, 15 holes), IP, MZO development
Jewelry Box	International Samual / lucky Strike Resources	093L 321	Cu, Au	Porphyry	G
Kalum	Eagle Plains Resources Ltd. / Clemson Resources Corp.	103I 228	Au, Ag	Vein / Breccia	DD (400 m, 2 holes)
Kitsault Mine	Avanti Mining Inc	103P 120	Mo	Porphyry	EN
KSM	Seabridge Gold Inc.	104B 103	Au, Cu	Porphyry	DD (23 442 m), GD, EN, G
Kutcho Creek	Capstone Mining Corp.	104I 060	Cu, Zn, Ag, Au	Massive Sulphide	EN, Corporate
Kutcho Jade	The Continental Jade Ltd	104I 078	Jade	Other	Jade extraction
Lennac Lake	Riverside Resources	093L 190	Cu, Mo	Porphyry	DD (1 485 m 4 holes), RC (1 987 m, 93 holes), IP (45.6 line km), AB-GP (4 532 line km, mag), G
Lone Pine	Bard Ventures Ltd.	093L 027	Mo	Porphyry	Corporate, G
Metla	Ocean Park Ventures Corp	104K 113	Au	Vein / Breccia	G
Morrison	Pacific Booker Minerals Inc.	093M 007	Cu	Porphyry	EN, Corporate
Arctos (Klappan)	Fortune Minerals Limited	104H 022	Coal	Metallurgical Coal	FS, EN,
New Nanika	New Chris Minerals	093E 055	Cu, Mo	Porphyry	DD?, G, GC
New Polaris	Canarc Resource Corp.	104K 003	Au	Vein / Breccia	Corporate
Newmont Lake	Romios Gold Resources Inc.	104B 281	Au, Ag	Skarn	DD (2 613 m, 15 holes), G, GP (AMT)
Oosta	Goldreach Resources Ltd.	093E 105	Cu, Au	Porphyry	DD (45 147 m, 67 holes), G, IP, TR
Poly	Frontline Gold Corp	104A 177	Au, Ag	Vein / Breccia	GC, G
Poplar	Lions Gate Metals Inc.	093L 239	Cu, Mo	Porphyry	Corporate
Provencher Lake - Letain	Glenpark Enterprises Ltd.	104I 092	Jade	Other	Jade extraction
Red Chris	Imperial Metals Corp. (Red Chris Development Company Ltd.)	104H 005	Cu, Au	Porphyry	DD (5 5415.1 m, 5 holes), EN, Mine Constrction
Red Cliff (Montrose)	Decade resources Ltd. / Mountain Boy Minerals Ltd.	104A 033	Au	Vein / Breccia	DD (73 holes)
Red Mountain	Banks Island Gold	103P 086	Au	Other	PEA, G
Schaft Creek	Copper Fox Metals Inc.	104G 015	Cu, Mo, Au	Porphyry	DD (2 263 m), GP, GC, G, FS
Scottie Gold	Rotation Minerals Ltd.	104B 034	Au, Ag, Cu, Zn, Pb	Vein / Breccia	Corporate, GC, G
Silver Coin	Jayden Resources Inc - Mountain Boy Minerals Ltd JV	104B 150	Au, Ag, Pb, Zn	Vein / Breccia	Corporate

(continued on following page)

TABLE 2.3 (continued)

Property	Proponent	MINFILE	Commodity	Deposit Type	Work (Proposed) Actual
Silver Hope	Finlay Minerals Ltd.	093L 256	Ag, Cu	Vein / Breccia	AB-GP, G
Silver Queen	New Nadina Explorations Limited	093L 002	Cu, Mo	Porphyry	DD (2 400 m, 3 holes), DCIP / MT (21.6 km), G
Silverknife	Teryl Resources Corp. / minewest Silver and Gold	104O 048	Ag, Zn, Pb, Re	Sedimentary Replacement	G, GC
Silvertip	Silvercorp Metals Inc.	104O 038	Ag, Pb, Zn, Au	Sedimentary Replacement	Corporate, PF, PEA
Silver Vista	Amarc Resources Ltd	093M 195	Ag, Cu	Vein / Breccia	AB-GP (2 700 line km, mag), GC, G,
Surf Inlet	Rupert Resources Ltd.	103H 027	Au	Vein / Breccia	G
Table Mountain	China Minerals Corp.	104P 029	Au	Vein / Breccia	DD (1 340 m, 10 holes)
Telkwa Coal	Carbon Development Partnership (Sherritt International Corp)	093L 152	Thermal Coal	Thermal Coal	Corporate
Tennyson	Teuton Resources Corp.	104B 167	Cu, Au	Porphyry	G, GC, MG, IP,
Thorn	Brixton Metals Corp	104K 031	Au, Cu	Vein / Breccia	DD (2 890 m), GC, G
Tide	Hunter Dickenson Inc	104B 129	Au, Ag, Pb, Zn	Vein / Breccia	G, GC
Trapper Lake	Ocean Park Ventures Corp	104K 078	Au	Vein / Breccia	G
Trek	Romios Gold Resources Inc.	104G 022	Au, Cu	Vein / Breccia	G, Corporate
Troitsa	Callinex Mines Ltd.	093E 005	Au	Porphyry	(IP, 33 km; ddh, 3000 m year 1)
Tulsequah Chief	Chieftain Metals Inc	104K 002	Cu, Zn, Ag, Au	Massive Sulphide	Corporate, EN
Turnagain	Hard Creek Nickel Corp	104I 119	Ni, Cu, Co, Pt, Pd	Magmatic	EN
Vines Lake	Lomiko Resources Inc.	104P 078	Au	Vein / Breccia	G
Wale / Orca	First Point Minerals Corp.	140I 128	Ni, Fe	Serpentine UM	DD (2 764 m, 10 holes) OP-BU (5 T), GP (69 km), G
Yellow Giant	Banks Island Gold	103G 021	Au, Ag	Vein / Breccia	DD (3 801 m, 30 holes), M, G, Corporate
Yellow Jacket	Eagle Plains Resources Ltd	104N 043	Au	Vein / Breccia	G
Zymo	Eastfield Resources	093L 324	Cu, Au	Porphyry	DD (2 322 m, 7 holes), G

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 totalling X metres; 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 (Xm) = reverse circulation drilling totalling X metres; TR = trenching; UG (Xm) = X metres of underground development; UG-BU = underground bulk sample; UT = UTEM;

TABLE 2.4. BEST 2012 DRILLING RESULTS FROM YELLOW GIANT GOLD PROJECT.

Zone	Hole	From (m)	To (m)	Core Interval (m)	Estimated True Width (m)	Au (g/t)	Ag (g/t)
Discovery	DIS-12-03	68.8	72.5	3.7	2.6	135.5	48
Discovery	DIS-12-01	53	54.5	1.5	1.4	31	38
Tel	BIG-12-29	210	212.95	2.95	2.09	50.8	43
Bob	BOB-12-07	37.9	44.3	6.4	5.0	41.5	126
Bob	BOB-12-01	45.6	49	3.5	2.9	35.4	125
Bob	BOB-12-04	41.5	45.5	4	3.3	39.1	113

TABLE 2.5. YELLOW GIANT PROJECT RESOURCES*

Zone	Measured			Indicated			Inferred		
	Tonnes	Au Grade (g/t)	Ag Grade (g/t)	Tonnes	Au Grade (g/t)	Ag Grade (g/t)	Tonnes	Au Grade (g/t)	Ag Grade (g/t)
Tel	15,000	21.1	43	21,000	18.5	41	8,000	20.6	40
Bob	6,000	32	63	11,000	30.9	58	8,000	29.3	50
Discovery	10,000	22.1	36	15,000	22.8	36	6,000	30.8	36
Kim							59,000	8.9	29
Total	31,000	23.4	44	47,000	22.7	43	81,000	13.7	33

*Courtesy of Banks Island Gold Corp, October 17 2012.

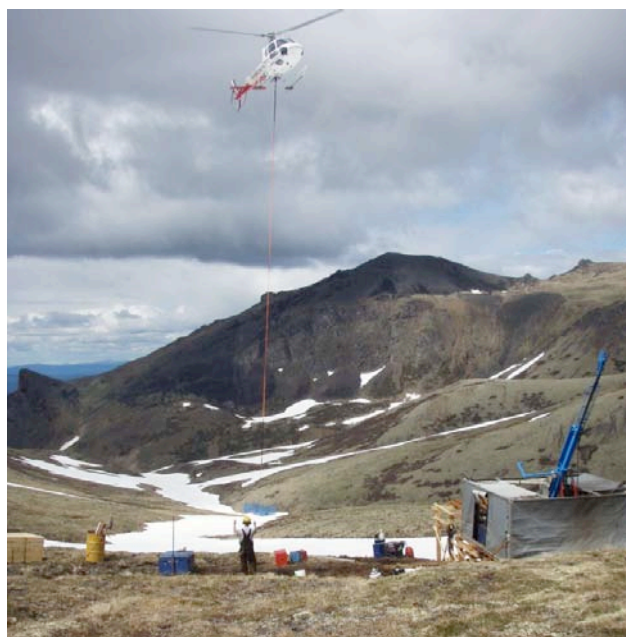


Figure 2.22. West Cirque resources drilling at the newly recognised Castle porphyry target.

disseminations, fracture-fillings and veins often associated with magnetite. Other characteristic porphyry textures observed include: quartz stock working, quartz-sericite-pyrite alteration and variable potassium feldspar flooding. Following the drill program, ground magnetics and IP were completed to increase geological understanding and successfully generate follow up drill targets.

Paget Resources partnered with Blue Gold Mining to keep exploring the **Ball Creek** (MINFILE 104G 018) copper-gold-molybdenum-silver project centrally located between Galore Creek, Schaft Creek, Red Chris and 8 km west of highway 37. Airborne magnetics and ground IP anomalies coupled with surface geological mapping and geochemistry further defined drill targets in the Main zone, also described as a 1400 x 500 m zone of copper-gold mineralization associated with known monzonite porphyry bodies. Drilling totalled 4108 m and successfully identified broad intercepts of gold-copper mineralization including 307.0 m grading 0.44 g/t Au plus 0.15% Cu from drill hole BC-12-54. As corporate changes within Blue Gold finalize, future activities for the

property are uncertain. The area is underlain by Upper Triassic welded tuff, agglomerate lithic tuff, flows and breccias which have been intruded by an early Jurassic monzonite stock.

Teck continued exploration efforts at the **GJ** project (MINFILE 104G 034) as part of their option agreement to earn up to 75% of the project from partner NGE Resources Inc. Located approximately 10 km west of highway 37 and 20 km west of Red Chris, similar geological models and exploration techniques are being used as those that discovered Red Chris. Exploration activities included 730 line km of ZTEM airborne geophysics, 10.4 line km of IP and magnetic geophysical surveys, 4000 m of diamond drilling, soil sampling, rock chip sampling and historic core re-logging (Figure 2.23). Drilling targeted coincident geological, geophysical and geochemical anomalies northeast of the known Donnelly zone (MINFILE 104G 086, 089). The drilling program comprised five holes at Wolf (MINFILE 104G 045), one at Seestor (MINFILE 104G 170) and two near the North zone (MINFILE 104G 180). Results are pending.

GJ is hosted in the early Jurassic (205.1 +/- 8 Ma) Groat stock which intrudes the Triassic Stuhini Group clastic and pelagic sediments. Faults of undefined geometry and displacement cut the Groat Stock leading to challenging exploration. It is notable that an angular unconformity (Figure 2.24) located approximately 2 km north of the Donnelly zone is interpreted to be the Triassic-Jurassic contact which is also reported to be exposed at Red Chris and near KSM and Brucejack.

Snip Gold Corp (formerly Skyline Gold Corp) completed a nine drill hole exploration program in the **Snip-Bronson Trend** gold-silver project area including work at the **Bronson Slope** gold-copper porphyry (MINFILE 104B 077) located adjacent to the past producing **Snip** gold mine (MINFILE 104B 250). A comprehensive review of all available data led to a proposed 5800 m drill program of which 2437 m was completed this year. Targets were strategically picked at the Snip-Bronson trend, Johnny Flats, the Burnie Trend and C1. The newly acquired Gorge zone, part of the Iskut Joint Venture agreement was also explored. In addition to drilling, borehole pulse electromagnetic (BPEM) geophysical surveys were completed in most of the 2012 drill holes and in four historical holes.

Mineralization occurs dominantly in conductive iron sulphides and BPEM has proved successful at identifying previously intersected gold-bearing mineralization. The goal of the this year's drilling program was to test grades of gold bearing structures as well as identify alteration and structure similar to that observed at nearby past producers. Significant gold grades were returned from all zones with highlights including 48.75 m grading 0.988 g/t Au and 7.5 g/t Ag from 18.0 m and 16.58 m grading 2.123 g/t Au and 4.4 g/t Ag from 115.52 m both in Gorge zone drill hole SG12-28. Results from 2012 activities are being compiled to prioritize targets for 2013.



Figure 2.23. Teck Geologists discuss recently drilled core from the Wolf prospect, located in the GJ project area.



Figure 2.24. An angular unconformity located approximately 2 km north of GJ's Donnelly Zone is interpreted to be the Triassic-Jurassic contact. This feature is also reported to be exposed at in the Red Chris, KSM and Brucejack areas.

Carmax Mining Corp released an updated resource estimate in May for the **Eaglehead** copper-molybdenite-gold porphyry (MINFILE 104I 008) located 48km east of Dease Lake. Inferred resources total 102.5 Mt grading 0.29% Cu, 0.010% Mo and 0.08 g/t Au. The resources are contained within two conceptual pits, the East zone and the Bornite zone. The updated resource is based on 8300 m of drilling completed in 2011 and historical drilling.

On December 11th, Hunter Dickinson Ltd daughter companies Amarc Resources Ltd and Quartz Mountain Resources Ltd commenced a drill program at the **Gnat Pass** copper porphyry prospect (MINFILE 104I 001) located approximately 26 km southeast of Dease Lake. A historical (1972) indicated resource estimate totals 30 Mt grading 0.39% Cu and is open to expansion. Drilling will target extensions to the historic resource and apply a more informed geological understanding of systems of this type such as the nearby Red Chris deposit. Drilling will continue through the winter.

TABLE 2.6. 2012 HIGHLIGHT WEST SEEL DRILL INTERCEPTS

Drill Hole	From (m)	To (m)	Width (m)	Cu %	Au g/t	Mo %	Ag g/t
S12-101	262	1079	817	0.2	0.21	0.026	2.24
S12-104	368	768	400	0.24	0.19	0.03	2.76
S12-106	120	892	772	0.23	0.14	0.028	3.31
S12-108	24	340	316	0.28	0.23	0.018	5.28
S12-109	262	554	292	0.23	0.21	0.03	2.8
S12-118	350	887	537	0.27	0.19	0.055	2.69
S12-119	234	807.7	573.7	0.24	0.13	0.026	2.62
S12-121	234	987.5	753.5	0.24	0.12	0.024	2.26
S12-127	248	688	440	0.22	0.13	0.015	3.13
S12-130	346	658	312	0.29	0.17	0.035	3.3

2.4.1.2 Porphyry Copper-Molybdenum-Gold Projects in the Skeena Arch

Gold Reach Resources conducted a large drilling program at their 100% owned **Ootsa** copper-gold-silver-molybdenum porphyry project (MINFILE 093E 105) located 8 km southeast of the producing Huckleberry mine. The Ootsa project consists of three known deposits: Seel, West Seel and Ox. Drilling in 2012 totalled 45 147 m in 67 holes. Forty-six holes aimed to expand the West Seel zone, eighteen holes aimed to evaluate the Ox zone and three holes tested a large geophysical anomaly located 4.5 km northeast of the West Seel discovery.

A Seel deposit resource estimate released in January 2012, used drilling results acquired from 2005-2011 and applied a 0.2% copper equivalent cut-off. Indicated resources total 28.13 Mt grading 0.22% Cu, 0.21 g/t Au, 1.1 g/t Ag and 0.007% Mo. Inferred resources total 214.78 Mt grading 0.17% Cu, 0.13 g/t Au, 2.17 g/t Ag and 0.017% Mo. An updated resource will include 2012 drilling results and is expected to be released in early 2013. Mineralized intercepts over hundreds of meters been returned from 2012 drilling results, highlights are listed in Table 2.6 (above). Mineralization consists of quartz-biotite-feldspar porphyry with stockwork quartz veining and secondary biotite alteration hosts disseminated chalcopyrite and molybdenite (Figure 2.25).

New Nadina Explorations Limited has been financed by Australian based Intrepid Mines Limited to continue exploration at the past producing **Silver Queen** (MINFILE 93L 002) poly-metallic mine located 43 km south of Houston. Exploration targets are not testing the historic style of mineralization but rather the interpreted intrusive source named **Itsit**. Porphyry mineralization was first identified in 2011 drilling and geophysical

surveys. Follow up TITAN 24, direct current induced polarization (DCIP) and magneto telluric (MT) geophysical surveys totalled 21.6 line km early this year and were integral in generating high quality drill targets for the 2012 program. Due to overlapping land-use interests on the property, drilling operations were delayed until late November and will remain active throughout the winter (Figure 2.26). The proposed drill program consists of 5000 m and targets a generally east-southeasterly dipping chargeability anomaly associated with copper-gold-molybdenum bearing feldspar-porphyry intrusive. To date, two holes have been completed. Both have intercepted moderate to strong quartz stock-works with disseminated, fracture fill and massive pyrite and weak molybdenite mineralization (Figure 2.27). Textures in core are similar to copper-gold bearing core drilled in 2011. Results will be returned over the winter.

Lions Gate Metals Inc released an updated resource estimate for the **Poplar** copper-gold-molybdenum-silver project (MINFILE 93L 239) located 45 km southeast of Houston. Using 0.15% Cu cut-off grade, indicated resources now total 171.3 Mt averaging 0.28% Cu, 0.08 g/t Au, 2.3 g/t Ag and 0.008% Mo. Additional inferred resources total 209.0 Mt averaging 0.23% Cu, 0.06 g/t Au, 3.62 g/t Ag and 0.004% Mo. The resource update was largely based on 2011 drilling results and subsequently increased contained copper by 47%. In addition to the resource update, recommendations were made to further increase resource confidence and size, no exploration programs were implemented during 2012. Canadian Dehua International Mining Inc put forth an offer which has been accepted by Loins Gate executives and shareholders and will likely lead to significant activity in 2013.

Finlay Minerals Inc expanded their mineral tenure by 54% around their **Silver Hope** copper-gold-silver-

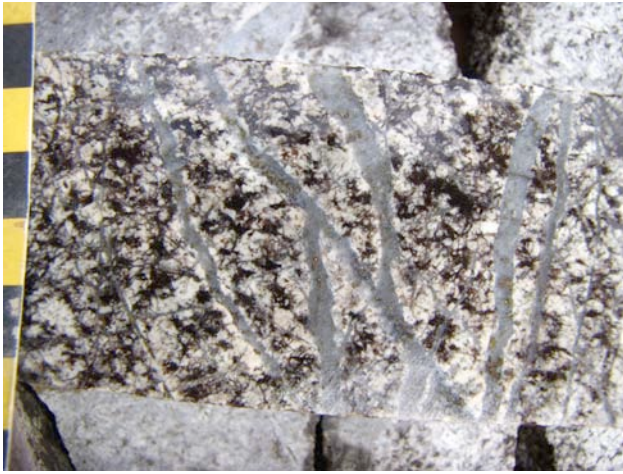


Figure 2.25. West Seel mineralization: quartz-biotite-feldspar porphyry with stockwork quartz veining and secondary biotite alteration hosts disseminated chalcopyrite and molybdenite.



Figure 2.26. Exploration drilling at the Itsit porphyry prospect resumed in late November. Due to overlapping land use interests, all drilling fluids are required to be contained and disposed of in the historic tailings impoundment area at the nearby Silver Queen mine.



Figure 2.27. Drill hole 12S-02; Itsit feldspar-porphyry with moderate to strong quartz stockwork similar in texture to gold-copper bearing core drilled in 2011.

molybdenum porphyry deposit (MINFILE 93L 256) totalling their holdings to over 97 km². Although no drilling was completed this year due to funding restrictions, a property wide (of original tenures) airborne ZTEM geophysical survey was completed and produced multiple targets with a 5 x 7 km area. Follow up geological mapping, geochemical soil sampling and geophysical surveys are planned to generate prioritized drill targets.

Bearing Resources Ltd partnered with Eastfield Resources Ltd to conduct further exploration at the **Zymo** copper gold (MINFILE 92L 324) project located 45 km west of Smithers. Seven drill holes totalling 2322 m were spread between three targets: the FM zone (2 holes, 1 failed at 27 m), the RD zone (2 holes) and Hobbes zone (3 holes). Best results were returned from the Hobbes zone hole ZY12-32; 173.7 m grading 0.20 g/t Au and 0.26% Cu from 180.0 m. Additionally, hole ZY12-34 returned 297.0 m averaging 0.07 g/t Au and 0.12% Cu. Hobbes zone drilling this year improved the understanding of porphyry geometry by limiting the extent of mineralization to the east and extending weak to moderate copper mineralization to the west-southwest. The Hobbes zone was discovered in 2007 when a soil sampling program found copper bearing quartz-stock work hosted in diorite porphyry shown in Figure 2.28. Bearing Resources has given notice they will no longer be pursuing the option agreement with Eastfield to acquire interest in the Zymo property.

Riverside Resources Inc with strategic alliance partner Antofagasta Plc explored the **Lennac** (MINFILE 93L 190) and **Flute** copper-gold-molybdenite porphyry targets located approximately 55 km east of Smithers. A large airborne geophysical survey totalling 4532 line km produced detailed magnetic data reflecting lithologies and structure masked by pervasive till cover. Additional IP geophysical surveys were completed totalling 45.6 line km. Drilling followed up West and East zones at Lennac totalling 1485 m in 4 holes (two holes per zone). At the West zone, drilling targeted known mineralization to depth where previous drilling ended in mineralization at shallow depths. Results returned top to bottom low-grade copper mineralization in both holes (Figure 2.29) with local (up to 18.0 m) intervals grading up 0.401% Cu. Drill hole LLDH-12-001 returned 345.90 m grading 0.189% Cu, 0.033 g/t Au and 34.3 ppm Mo from 4.5 m. Drilling at the East zone targeted interpreted structure from magnetic data coupled with reverse circulation drill results, assays are pending.

2.4.1.3 Nickel in Ultramafic Rocks

First Point Minerals Corp continued exploration for nickel-iron-alloy at the **Wale** and **Orca** prospects (MINFILE 104I 128) located 45 km and 34 km east of Dease Lake respectively. Rock chip samples returned from 2011 exploration at Wale defined the 3.6 km long

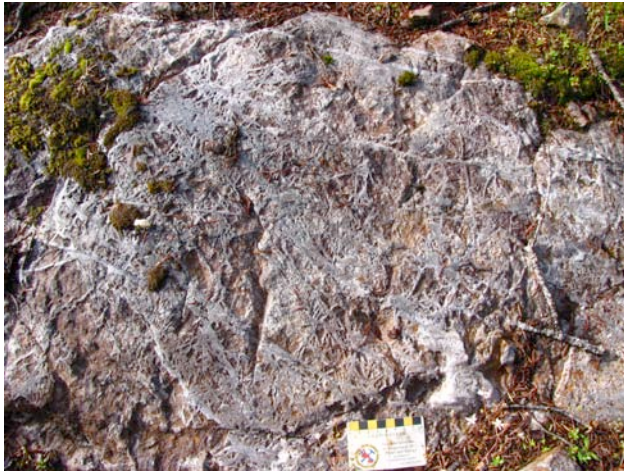


Figure 2.28. Copper-bearing quartz stockwork at the Hobbes Discovery showing on the Zymo property.



Figure 2.29. Drill hole LLDH12-002: Lennac Lake West zone drilling returned low grade copper values from surface to the end of hole.

Eagle target zone of nickel-iron alloy mineralization. Follow up 2012 activities included drilling, a five tonne surface bulk sample and ground-based magnetic geophysics. Drilling totalled 2 764 m in 10 diamond drill holes returning highlight results such as 260.7 m grading 0.126% nickel in alloy from 4.3 m in drill hole 12DH-06. The five tonne bulk sample was collected near the site of hole 1 where surface rock chips returned values from 0.150 - 0.164% nickel-iron alloy. The bulk sample material will be used for metallurgical test work as well as recovery investigations for iron and chromite. Exploration activities completed at Orca included rock chip sampling, mapping and ground magnetic geophysical surveys. The 1400 x 750 m Orca target zone is defined by 118 rock-chip samples averaging 0.113% nickel-iron alloy. Drilling is planned for 2013.

Awaruite ($\text{Ni}_{2.3}\text{Fe}$) is hosted in serpentinized ultramafic rocks (Figure 2.30) of the Cache Creek Terrane. The mineral is integral to an emerging style of low-grade nickel deposit being evaluated by First Point and Cliffs Natural Resources at the advanced exploration stage Decar project located in the Omineca Region. Advantages of this deposit type are suggested through mechanical separation of awaruite grains using gravity and magnetic recovery methods versus sulphide flotation.

2.4.2 Massive sulphide projects

“Massive sulphide deposits in the Northwest region comprise of volcanogenic deposits, skarns, mantos, and some of undefined deposit type. Volcanogenic deposits occur in strata of varying ages and terrane affiliation. The Tulsequah Chief deposit is in Paleozoic strata; Kutcho Creek is hosted in early Triassic rocks, and important deposits in the Stewart district are hosted in Jurassic volcanic rocks. The latter include Eskay Creek, Granduc and Anyox. Manto and Skarn deposits occur where Paleozoic limestone of the ancient continental margin are intruded by Cretaceous to Tertiary plutons.” (Revised from Wodjak, 2010)

2.4.2.1 Stewart District

The **Red Mountain** copper-gold-silver property (MINFILE 103P 086) was reactivated when Banks Island Gold Ltd entered into an option agreement with Seabridge Gold Inc to acquire 100% of the property. Located approximately 18 km east of Stewart and extensively explored through the 1990’s (Figure 2.31) including over 1600 m of underground development, the project has seen limited attention since 2000. Three months after Banks Island issued a Letter of Intent for Option of the Red Mountain property, they released an updated Preliminary Economic Assessment. Using historical data, an updated resource estimate was generated for four zones: Marc, AV, JW and 141. Measured plus indicated resources are reported from the all but the 141 zone and total 1.611 Mt grading 8.4 g/t Au and 38 g/t Ag. Inferred resources from all zones total 0.87 Mt grading 5.4 g/t Au and 10 g/t Ag. The PEA indicates an underground gold mine may be viable and recommends the project advance towards a pre-feasibility or feasibility study level. Proposed mine access would be via a +15% grade, 7190 m decline connecting the proposed mill site located at approximately 430 m elevation in the Bitter Creek valley to the deposits well over 1000 m vertically above.

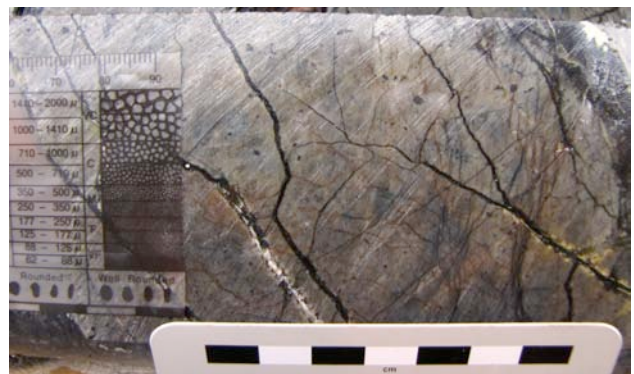


Figure 2.30. Millimetre-scale awaruite ($\text{Ni}_{2.3}\text{Fe}$) hosted in serpentine at the Wale project.



Figure 2.31. Underground mining equipment left at Red Mountain from development completed in the 1990's.

While conducting ground work around the Red Mountain area, geologists identified a new showing approximately 3 km south of the known resource areas. Recent glacial retreat has exposed the valley floor approximately 880 m from the **MacAdam Point** poly-metallic showing (MINFILE 103P 220). Follow up prospecting identified an area approximately 1000 x 600 m exposing a quartz-monzonite – metasediment contact with a related metamorphic aureole. Grab samples from the contact associated polymetallic veins returned up to 71 g/t Au, 197 g/t Ag and 1.1% Cu. The new showing has been named **Lost Valley**.

Romios Gold Resources Inc. acquired additional tenures in the heart of the Golden Triangle resulting in continuous claims from their **Trek** (MINFILE 104G 022) porphyry copper-gold project to their **Newmont Lake** (MINFILE 104B 281) massive sulphide copper-gold-silver project. A review of all available data was conducted on the Trek property while most of 2012 efforts were concentrated on the '72, Ken and Northwest zones of the Newmont Lake project area. Activities at Newmont included diamond drilling and audio-magneto telluric geophysical surveys. Drilling totalled 2613 m in 15 holes in areas targeting both mineralization intercepted

in historic holes and extensions to known zones. Highlight returns from the Northwest zone include 11.35 m grading 3.99 g/t Au, 0.17% Cu and 2.36 g/t Ag in NW12-176 from 67.0 m which included discrete higher grade intervals up to 6.94 g/t Au over 1.85 m. At the Ken zone, drill hole KZ12-08 returned 3.28 m grading 1.39 g/t Au, 0.43% Cu, 5.34 g/t Ag and 8.30 g/t Sc from 47.11 m. Drill hole KZ12-12 returned a broad intercept of 105.57 m grading 0.40 g/t Au and 25.98 g/t Sc with minor copper and silver values from near surface (1.3 m). Massive sulphide mineralization at the Ken zone comprises of three horizons: the upper and lower gold zones and the scandium zone. Future exploration will follow up on 2012 drilling results and resistivity anomalies.

Dolly Varden Silver Corporation partnered with Hecla Mining to continue exploring the past producing Dolly **Varden** silver property (MINFILE 103P 188) located approximately 45 km southeast of Stewart. Hecla Mining secured a 19.9% interest in Dolly Varden Silver Corporation who is aiming to validate historic reserves and identify a new Eskay Creek type VMS deposit. Exploration activities included exploration drilling, geophysical surveys, geological mapping and sampling, access repair and some rehabilitation of underground workings. The entire proposed drilling program was not fully completed due to weather but still totalled 1728 m in 6 holes. The remainder of the drilling program is poised for an early start in 2013. An airborne geophysical ZTEM survey completed 733 line km.

Homestake Resource Corporation optioned their flagship **Homestake Ridge** gold-silver-copper project (MINFILE 103P 216) to Agnico Eagle who can now earn up to 65% interest in the project located 32 km north of Alice Arm. Drilling focussed on the South Reef zone and tested over 600 m of strike-length as well as other priority targets with 4743 m in 13 holes. Highlight results include 4.0 m grading 11.4 g/t Au and 3.7 g/t Ag from drill hole HR-243. The South Zone was discovered in 2011 and is located centrally in a 4 km long mineralized trend. The Main Homestake deposit is located approximately 800 m northwest of the South Reef (Figure 2.32) and contains an indicated resource totalling 0.88 Mt grading 6.7 g/t Au

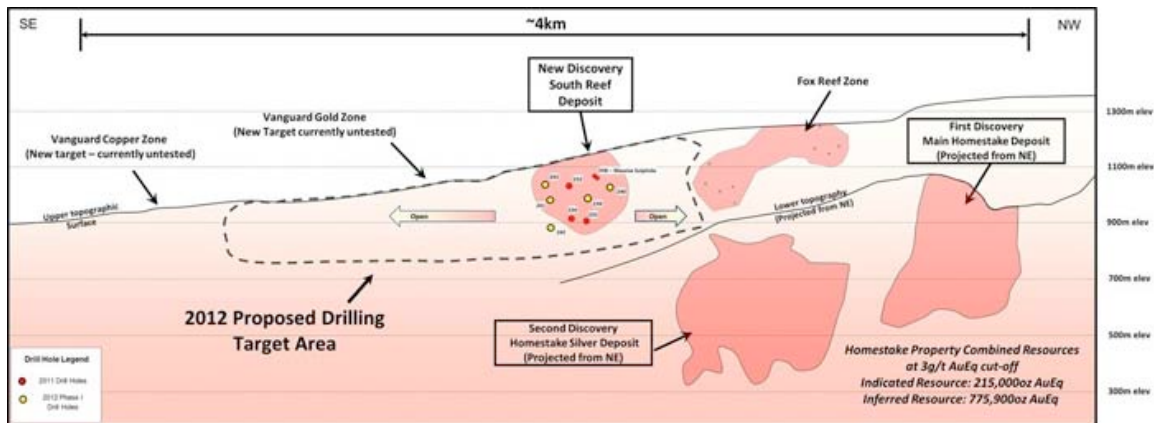


Figure 2.32. Homestake Ridge deposits long section looking southeast. Courtesy of Homestake Resources Corp.

and 47 g/t Ag using a 3.0 g/t gold-equivalent cut-off. Homstake Resource Corporation also completed ground work at their 100% owned **Kinskuch** project located immediately east of the Dolly Varden property. Rock and soil sampling followed up 2011 drilling and geophysics resulting in extending the overall silver-lead-zinc **Illiance River Trend** (MINFILE 103P 141) by 750 m. The geologic setting is interpreted to be similar to the past producing Dolly Varden mine.

2.4.3 Gold Silver projects

“Gold-Silver projects in the region targeted mainly orogenic and intrusion-related veins. In some cases veins have associated base metal values. Gold-silver projects occur in various geologic terranes and are currently concentrated in four areas: the ‘Golden Triangle’ (Stewart district) where most are related to Jurassic intrusions of Stikine terrane; the Atlin area where they are related to orogenic emplacement of Cache Creek terrane, and to the terrane-bounding Llewellyn fault; the Cassiar area where gold veins are related to orogenic emplacement of Slide Mountain terrane; and, the Skeena Arch where gold veins are mainly related to Cretaceous-Tertiary intrusions and secondarily to Cretaceous orogenic events.” (Revised from Wojdak, 2010)

2.4.3.1 Epithermal and Orogenic veins in the Atlin district

BC Gold Gold Corp now owns 100% of the historic **Engineer** underground gold mine (MINFILE 104M 014) located 32 km west of Atlin. The company has fulfilled its commitments to attain the final 25% of the project from Engineer Mining Corp as of September 25th and has entered into an agreement to acquire remaining site equipment, royalties and surface rights. Activities on site during 2012 included dewatering of levels 6 and 7 which have been submerged since mine closure in 1928. Ventilation and water services were restored allowing access to these levels. Geologists surveyed and sampled the down-plunge extent of the 505-3 and 505-5 gold shoots hosted within the Engineer Vein. One hundred ninety panel samples were collected along 74 m of vein exposure on 6 Level and along 173 m of vein exposure on 7 Level. Results of composite panel samples confirm moderate to strong gold values while high grade grab samples confirm local bonanza grades up to 12 720 g/t Au. It is notable that the 505-3 high-grade shoot is outside the 2011 inferred mineral resource. Surface activities included trench sampling along the 0.3-0.8 m wide, gold bearing, quartz-carbonate Schaft Vein located approximately 215 m northeast of the Engineer Vein. The Schaft Vein has been defined for over 50 m along strike and over 113 m below surface to the 5 Level and has returned bonanza grade grab samples but has never been drill tested.

Test mining of the Engineer and Decker veins in 2011 produced 246.1 tonnes grading 16.9 g/t Au and was milled on site. After milling and gravity concentration, (Figure 2.33) the bulk sample yielded 969.2 kg of dry concentrate averaging 2193.1 g/t Au. Eight hundred kilograms of that concentrate was sold to Sipi Metals Corp who then determined contained gold totalled 2177.5 grams of which 2112.2 grams were recoverable and payable to BC Gold Corp. Net proceeds from the bulk sample totalled \$107 000 USD. Further selective test mining is planned from Engineer Vein high-grade shoots accessible from the 6 and 7 Levels. Gold recovery from the on-site 30 tonne per day mill is currently estimated at 51%; bench-scale testing indicates recoveries above 70% are achievable.

Brixton Metals Corporation completed a successful exploration drilling program at the **Thorn** (MINFILE 103P 216) silver-gold-copper-lead-zinc project located approximately 130 km southeast of Atlin. Drilling totalled 2890 m and focussed on the Oban Breccia zone and returned high grade precious and base metal values. Best intercept to date was from THN12-84 (Figure 2.34): 310.0 m grading 105.82 g/t Ag, 0.71 g/t Au, 0.03% Cu, 0.90% Pb, 1.76% Zn from 26.0 m. Higher grade 123.0 m inclusion graded 190.68 g/t Ag, 1.19 g/t Au, 0.06% Cu, 1.26% Pb and 3.25% Zn from 44.0 m. An aggressive follow up program is being planned to ideally generate a maiden resource estimate in 2013.

2.4.3.2 Epithermal and Orogenic veins in the Cassiar district

China Minerals Mining Corporation completed drilling at the **Taurus** (MINFILE 104P 012) and **Table Mountain** (MINFILE 104P 070) past producing gold deposits now collectively known as the **Cassiar Gold** project. Infill drilling at Taurus tested gaps and surrounding areas of the Taurus deposit and the Sky Vein at Table Mountain. Forty-three holes totalling 6857 m



Figure 2.33. The gold line off the wash table at BC Gold Corp's Engineer gold mine. Courtesy of BC Gold Corp.



Figure 2.34. Drill hole THN 12-84: high grade polymetallic mineralization.

tested Taurus deposit targets. Highlight results include: TA12-11: 27.20 m grading 1.46 g/t Au from 104.60 m; TA 12-14: 4.7 m grading 12.32 g/t Au from 26.0 m; TA12-42: 36.15 m grading 1.17 g/t Au from 139.4 m. Drilling at the adjacent Table Mountain property on the Sky Vein totalled 1340m in 10 drill holes. Results returned higher gold grades from adjacent sericite – carbonate altered wall rocks than veins. Highlights include 12.50 m grading 1.91 g/t Au from 91.90 m from TM12-06.

2.4.3.3 Epithermal and Orogenic veins in the Stewart District

Ascot Resources Ltd conducted a significant drilling program spread across three areas: the **Big Missouri** (MINFILE 104B 046), the **Martha Ellen** (MINFILE 104B 092) and the Sparky zone at **Dilworth**. The project area is located 13 km north of Stewart, immediately west of the past producing Silbak Premier gold mine (MINFILE 104B 054). Drilling totalled 36 942 m in 166 holes. A maiden resource estimate for the Big Missouri area utilizes drilling data from 2009-2011 was released in May. Using a 0.5 g/t Au cut-off grade, indicated resources total 25.19 Mt grading 1.224 g/t Au and 5.8 g/t Ag. Additional inferred resources total 19.95 Mt grading 0.881 g/t Au and 4.2 g/t Ag. Further exploration work is planned to ultimately relate proximal and historically significant Unicorn, S1, Dago, Northstar, Creek and Province / Big Missouri Zones (Figure 2.35).

Mountain Boy Minerals Ltd with joint venture partner Decade Resources Ltd drilled 73 holes at the past producing **Red Cliff** copper-gold-silver-zinc property (MINFILE 104A 037). Most of the drilling focussed on the **Montrose** zone (MINFILE 104A 033) approximately 1 km north of the historic Red Cliff underground workings and approximately 20 km north of Stewart. Drilling has returned multiple significant gold intercepts at proximal to historic workings including minor amounts of visible gold.

Teuton Resources remained active in the Stewart region by completing three drill holes at the **High** property (Figure 2.36) located approximately 57 km north of Stewart and on the southern margin of Pretivm

Resources' Brucejack project. Drilling totalled 1346 m with highlight results returning 222 m grading 0.88 g/t Au from drill hole H12-01. Teuton also drilled two holes at the **High South** property exploring for Eskay Creek style volcanogenic massive sulphide deposits. At the **Clone** gold project (MINFILE 103P 251), Canasia Industries collected 20 bulk samples weighing 1 tonne each. An average grade of the samples was 53.1 g/t Au.

2.4.3.4 Intrusion Related Gold-Silver in the Skeena Arch

Argonaut Exploration Inc conducted exploration drilling at the **Victor Vein** located approximately 2.1 km south of the past producing **Columario** gold-silver mine (MINFILE 103I 077) and 17 km east of Terrace. Drilling totalled 725.4 m in four holes and confirms vein and mineralization continuity to the south. Highlight results include 1.2 m grading 11.5 g/t Au, 29.8 g/t Ag and 0.74% Cu. Argonaut has acquired mineral tenures covering several past producing precious metal mines including **Lucky Luke** (MINFILE 103I 039), **Cordillera** and **Dorreen** (MINFILE 103I 048). Ground work at Lucky Luke and Cordillera included prospecting and grab samples from dumps and veins which returned significant gold values up to 30.6 g/t Au, 274 g/t Ag and 10.5 g/t Ag. These gold properties have never been owned by a single company before now.

Eagle Plains Resources Ltd optioned the **Kalum** property (MINFILE 103I 225) to Clemson Resources Corp who can now earn up to a 60% interest in the project. Clemson drilled two holes aiming to extend mineralization from the **Bling-Rico** zone. Total drilling production and assay data were not available.

Exploration conducted by Amarc Resources Ltd focussed on silver and copper mineralization around the **MR** showing (MINFILE 093M 195) located approximately 55 km northeast of Smithers. Originally



Figure 2.35. Big Missouri and Dilworth projects in the background of the Long Lake Hydro project headworks.



Figure 2.36. Drilling at the High property involved over 2 km of water line.

discovered by Ralph Keefe in 1990 with the aid of a Provincial Government prospector's grant, the property has sat idle since exploration efforts ceased in 1992. Amarc has staked mineral claims over approximately 720 square kilometers of surrounding host rocks and geochemical anomalies and refer to the project area as **Silver Vista**. Activities this year included 2700 line km of airborne magnetic geophysical surveys, 700 geochemical silt samples, 6700 soil samples, 175 rock-chip samples and the re-logging and sampling of historic MR drill core. Results are being compiled over the winter and will be used to generate 2013 drill targets.

2.4.4 Coal projects

Coal contributed 68% (\$5.85 billion) of estimated provincial mining revenues in 2011; re-evaluation of known coal deposits hosted in northwestern BC is gaining momentum. The former Mount Klappan project is now known as the **Arctos Anthracite** project (MINFILE 104H 022) and is owned by Fortune Minerals Limited (80%) and Posco Canada Ltd (20%) and located approximately 330 km northeast of Prince Rupert. There are four resource areas at Arctos, Lost Fox, Hobbit Broach, Summit and Lost Fox Extension deposits. Total measured plus indicated resources sum 231 Mt with additional 359 Mt of inferred resources. A Definitive

Feasibility Study (DFS) released in October 2012 and included updated drilling and survey data for the **Lost Fox** deposit area as well as defines an overall site proposal. Run-Of-Mine (ROM) proven plus probable coal reserves at Lost Fox total 124.9 Mt equating to 10% ash product reserves totalling 69.2 Mt. The DFS also assessed open pit mine development, a wash plant, site infrastructure and the costs to upgrade and extend rail service to the project site. Proposed production is 3 Mt per year of pulverised coal injection product to be transported by rail to the port of Prince Rupert. Capital expenditure for the project is an estimated \$788.6 million which includes full cost of the 150 km railway upgrade (estimated \$330 million) from the current terminus at Minaret. Estimated mine life is 25 years.

Coal at Arctos is high rank anthracite, desirable for particular steel-making purposes. The coal occurs within at least 33 individual coal measures up to 11 m in true thickness, 14 of which are considered amenable to open pit mining at the Lost Fox deposit with a minimum true thickness of 1 m. The deposits are hosted in the Jurassic through early Cretaceous Klappan Sequence of the Bowser Basin and part of the 30 x 80 km Groundhog Coalfield.

Atrum Coal is also evaluating coal resources in the southern region of the Groundhog Coal field at the **Groundhog** deposit (MINFILE 104A 078). Based on historical drilling and trenching, there are 8 economic coal measures between surface and 200 m depth. Additional coal seams at depth are possible. Atrum completed 15 drill holes totalling 4992 m and returned up to 36 m of cumulative coal between surface and 400 m and individually up to 8.2 m thick. Average cumulative coal seam thickness totalled 20 m from all 15 holes. Eight hundred coal samples were collected for coal quality analysis due by year end. A global JORC compliant indicated resource totalling 57.1 Mt with additional inferred resources totalling 101.9 Mt. Ninety per-cent of the updated resource is between surface and 150 m depth. An updated JORC resource estimate and mine scoping study are expected to be released in early 2013. Atrum is also reviewing all available data at the **Naskeena** coal project (MINFILE 103I 002) located 60 km north of Terrace. Interest has also been raised surrounding a review of available data and development options regarding the **Telkwa** coal measures (MINFILE 093L 152).

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