

# EXPLORATION AND MINING IN THE SKEENA DISTRICT, BRITISH COLUMBIA

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## SUMMARY AND TRENDS

Exploration activity in northwest British Columbia (Map 1 ) reached record levels of expenditure and metres drilled in 2011. Approximate totals are \$220 million and 380 467 metres (Figures 1 and 2). This expenditure represented an increase of \$48 million (22%) from 2010 and included at least 54 drilling projects and 21 projects with over \$2 million in expenditures.

Producing mines Endako and Huckleberry have undergone significant upgrades and expansions resulting in extended mine life to 2028 and 2021 respectively. These two projects have added significant portions to the 2011 estimated total of over \$400 million in mine development. Several proposed mine projects are progressing through environmental assessment processes including Red Chris copper-gold, KSM gold-copper, Kitsault molybdenum, Kutcho Creek copper-zinc, Schaft Creek copper-gold-molybdenum and Morrison copper. The Tulsequah Chief copper-zinc-gold-silver development has been reactivated with the installation of a water treatment plant. Mount Klappan Coal has also seen renewed interest. Metal production and mine reserves are listed in table 1.

Small mine (< 75 000 tonnes milled per year) development included Dome Mountain underground gold, Fireside barite, Yellow Jacket gold and Silver Tip silver-lead-zinc.

The Northwest Transmission line received final project approvals in May 2011 and anticipates 287 kilowatt service to be available at Bob Quinn Lake by spring 2014. A design and build contract has been awarded and pre-construction work is underway.

Highlights from 2011 are:

- 1) KSM - reserve estimate totals 2.192 billion tonnes @ 0.55 g/t Au
- 2) Brucejack – Bonanza-grade gold intercepted (Figure 3) 73 255 m drill program completed.
- 3) Red Chris - Over one kilometre long copper-gold intercepts from deep drilling; poised for mine construction with receipt of final development permits
- 4) Tulsequah Chief – Installation of interim water treatment plant, poised for mine construction

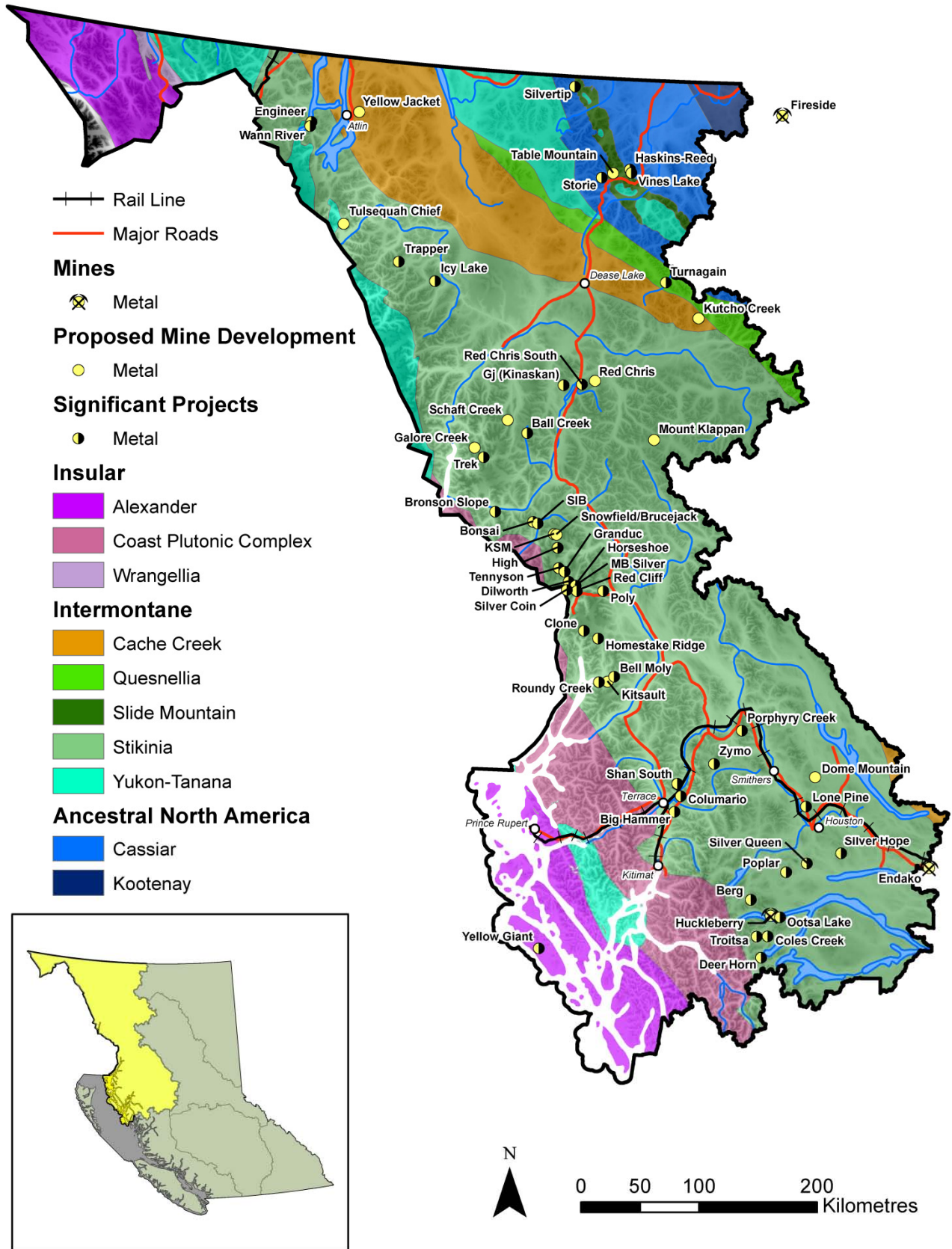
- 5) Kutcho Creek – Updated pre-feasibility, poised to enter EA process
- 6) Schaft Creek – Updated resource estimate,
- 7) Mount Klappan Coal - Multinational steel producer POSCO acquires 20% of project
- 8) Kitsault – Feasibility complete, poised to enter EA process
- 9) Tanzilla – Discovery of west gossan zone
- 10) Silver Queen – Porphyry-style mineralization intercepted
- 11) Poplar – Multi-hundred metre copper-gold-molybdenum intercepts, major drilling program
- 12) Granduc – Updated resource estimate, new massive sulphide zone identified
- 13) Big Missouri –Dillworth – Large drill program, narrow high-grade gold intercept

## MINES AND QUARRIES

### MAJOR METAL MINES

Thompson Creek Metals Corp (operator and 75% owner) and Sojitz Corporation (25% owner) focussed on constructing a new mill and upgrading “measured and indicated resources” to “proven and probable” reserves at their co-owned **Endako** open pit molybdenum mine (MINFILE 093K 006). Total 2010 molybdenum production at 4543 tonnes exceeded forecasts by 7%. The increased output relative to 2009 was partially due to a slightly higher average ore grade of 0.060% vs 0.059% Mo. 10 176 200 tonnes of ore was milled with 74.5% recovery at a cost of \$8.89 per pound. Ore was dominantly mined from the West Denak pit.

Results from a 21 500 m drilling program conducted in 2011 increased reserves by 9% to 141 611 tonnes of contained molybdenum adding 2 years of forecasted mine life to 2028. Proven and probable reserves as of June 2011 are estimated to be 308.68 Mt at an average grade of 0.046% Mo with an additional measured and indicated 57.37 Mt grading 0.030% Mo. Inferred resources include 49.34 Mt grading 0.035% Mo.



Map 1. Operating mines and selected major exploration projects in the Skeena district, 2011.

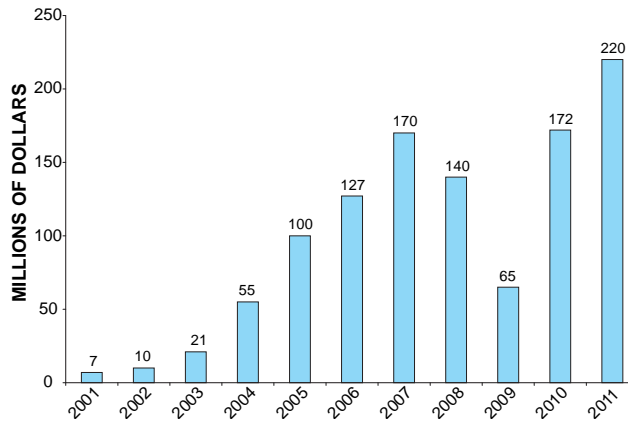


Figure 1. Annual exploration expenditure, Skeena district.

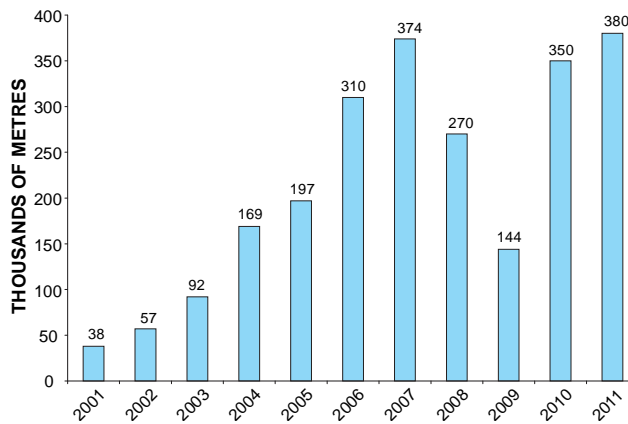


Figure 2. Annual exploration drilling, Skeena district.

Modernization and construction of the new mill continue with project engineering and procurement complete and most major components in place. Daily processing capacity of the new facility is expected to increase 44% from 28 122 to 49 895 t/d. Capital costs for the project are anticipated to be 15% above previous estimate of \$550 million due to delays in final project engineering, material delivery and weather. Approximately \$527 million have been spent since project inception through September 2011. Pre-commissioning activities are underway at the new facility and is forecasted to be complete by early 2012. The current producing mill (constructed in 1965) is scheduled to continue operation until the start-up of the new mill.

Endako is a porphyry molybdenum deposit within the early Cretaceous Francois Lake granite batholith. The ore body is a 3.5 km long vein system that changes in strike along its length from west-northwest in the Endako pit to northerly in the Denak pit, resulting in an arcuate shape. The zone is 400 m wide and extends more than 400 m below surface at a moderate southerly dip. Mineralization is related to intrusion of the Casey aplite which domed and fractured the older and coarse-grained Endako phase of the batholith. Post-mineral cross faults



Figure 3. Brucejack bonanza gold, 0.6 m grading 18 755 g/t Au and 9 312 g/t Ag from 60.60 m in drill hole SU-115. Photo courtesy of Pretium Resources.

segment the ore zone into the Endako, East Denak and West Denak pits. In the long-term mine plan these will merge into a large ‘Super-Pit’ (Figure 4).

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. Ownership is divided between Imperial Metals Corp (50%), Mitsubishi Material Corporation (32%), Dowa Mining Ltd (6%), Furakawa Company Ltd (6%) and



Figure 4. Areal view of Endako Mine showing the 3 existing pits. Courtesy of Endako Mines.

**TABLE 1. MINE PRODUCTION AND RESERVES, SKEENA DISTRICT, 2011**

Mine	Operator	Production (2010)	Tonnes milled (2010)	Reserves	Grade
Endako	Thompson Creek Metals Corp.	4543 tonnes molybdenum	10 176 200	340 300 000 tonnes @ 0.046% Mo (June 1 2011)	0.060% Mo
Huckleberry	Huckleberry Mines Ltd.	20 643 tonnes copper, 38 tonnes molybdenum, 90.6 kg gold 6 337 kg silver	5684 300	11 747 400 tonnes @ 0.359% Cu, 0.005% Mo (May 11, 2010)	0.377% Cu, 0.006% Mo
Fireside	Fireside Minerals Ltd.	not available	25 000 ( in 2011) *approximate*	170 400 (not NI 43-101 compliant)	

Marubeni Corporation (6%). 2010 metal production totalled 20 643 tonnes copper, 90.6 kilograms gold, 6337 kilograms silver, and 38 tonnes molybdenum from 5684 300 tonnes of ore. Grades averaged 0.396% Cu and 0.007% Mo. Copper recovery was 91.7%. Forecast 2011 metal production is 17 690 tonnes copper, 79.4 kilograms gold and 5329 kilograms silver. Lower production values are due to significant mill-feed sourcing from low-grade stock piles in combination with material mined from the Main Zone Extension and the “Pushback Plan”.

The “Pushback Plan” is designed to decrease the pit wall angle in the Main Zone pit after two stability incidents on the north wall halted mining of the Main Zone Extension. Vertical drilling completed in 2010 west of the Main Zone pit successfully identified near-surface minable resources. Pit optimization modelling calculated 7.8 Mt of ore will be released due to the Pushback Plan. Proven and probable reserves from the Main Zone Extension including material from the Pushback Plan (excluding stockpiles) total 11 747 400 tonnes averaging 0.359% Cu.

Stockpiled ore totalling 6.5 Mt with average grade 0.33% Cu combined with 7.8 Mt released during the Pushback Plan operation will be sufficient mill feed to continue production until at least January 2014.

Development planning to extend the mine life includes plans to mine material below the Main Zone Pit, across the “Saddle Zone” which separates the Main Zone and the Main Zone Extension Pits and beneath the current tailings facility to form a “Super Pit”. This plan is known as the “Main Zone Optimization” and is illustrated in cross-section in figure 5. Measured plus indicated resources in the Main Zone Optimization total 180.7 Mt with average grades of 0.315% Cu and 0.006% Mo.

Included in this mineralized resource, 39.7 Mt averaging 0.343% Cu and 0.009% Mo (using a 0.20% Cu cut-off) are contained within the Main Zone Optimization pit shell and are sought to be developed into mineable reserves. Mine life would be extended to 2021. Additional inferred resource totals 48.0 Mt with average grades of 0.263% Cu and 0.003% Mo. Base case capital commitments over the course of the project are forecast at \$212 million and after tax cash flows of \$221 million over the life of the mine. Huckleberry Mines is seeking an amendment to their current *Mines Act* Permit to proceed with detailed engineering, procurement and commissioning to begin waste stripping in the 2<sup>nd</sup> quarter of 2012.

Exploration at Huckleberry in 2011 was dominated by geophysical surveys. Titan 24 and Natural Source Audio Magneto Telluric (NSAMT) surveys identified conductive targets proximal to the existing mine. Drill targets for 2012 included testing some of the geophysical anomalies and deep drilling the main deposit. The Main Zone deposit remains open at depth and is sparsely drilled below the Main Zone Optimization plan despite drill intercepts exceeding 0.5% Cu.

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 chalcopyrite, crosscut by gypsum-filled fractures. The Main and East zones are disrupted by the 105 Fault

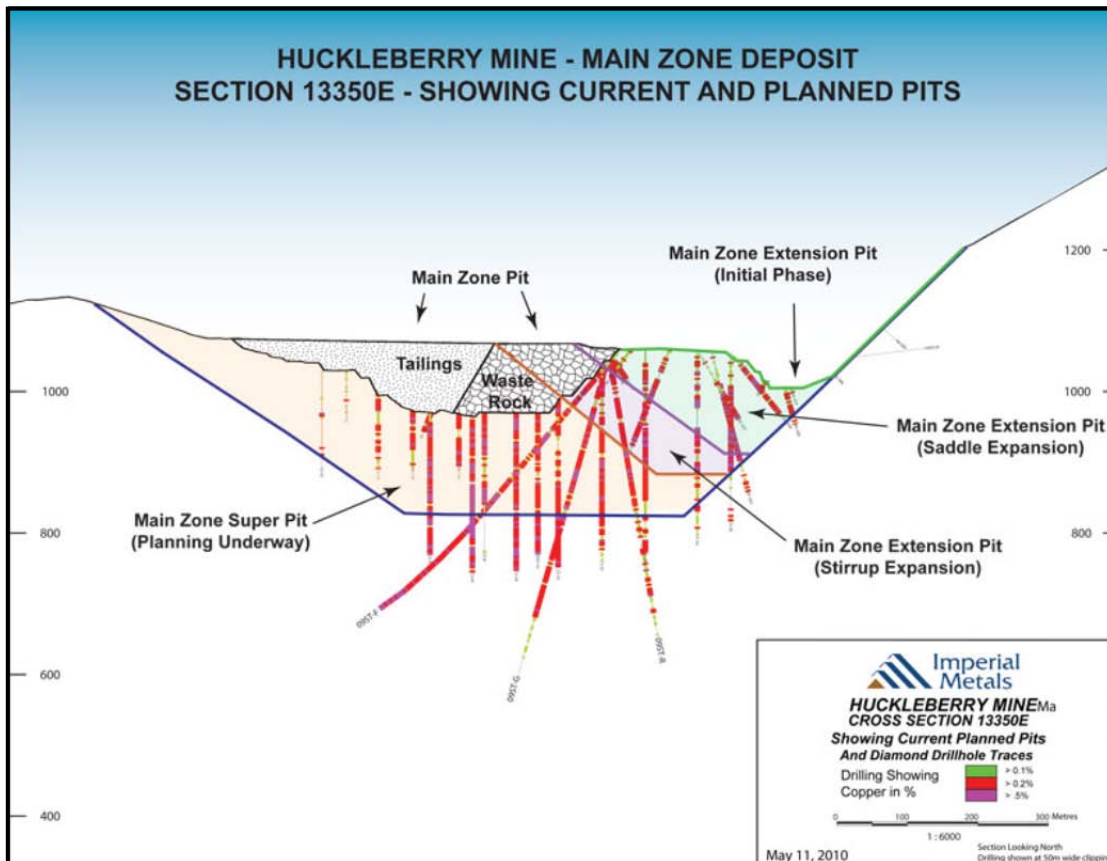


Figure 5. Cross-section of Huckleberry “Main Zone Optimization” plan with Cu bearing drill-hole intercepts. Courtesy of Imperial Metals.

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. The upper benches of the northern pit wall have been subject of stability issues due to fault splays.

### INDUSTRIAL MINERAL QUARRIES

Fireside Minerals Ltd continued to mine barite from its summer-seasonal **Fireside** barite operation (MINFILE 94M 003) located 125 km east of Watson Lake. Approximately 25 000 tonnes of material were mined from the Bear pit (Figure 6) however total barite production estimates were not available. Step-out diamond drilling during 2011 totalled approximately 500 m and adding approximately 30 000 tonnes to the Bear Pit resource (A. Allan personal comm.). All the barite was trucked to the company’s grinding and bagging plant in Watson Lake. Bagged product is sold on site to various operators who utilize the heavy additive in drilling fluids in the oil and gas industry. Vertically-dipping barite veins at Fireside are associated with a gabbro dike of inferred Paleozoic age that was emplaced into Kechika Group sediments.

Jade in northwest BC is mined chiefly by Cassiar Jade Contracting. Production of high-value gemstone

comes from three localities: **Provencher Lake** (MINFILE 104I 073, 092), **Kutcho** (MINFILE 104I 078) and **Cassiar** (MINFILE 104P 005). At both Provencher and Kutcho, located 80 and 90 km respectively east of Dease Lake, the jade that is recovered occurs equally as “placer” boulders in glacial till and as lenses in bedrock. Angular boulder trains in the till are traced using an excavator to their source in bedrock. 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.

### MINE EVALUATION PROJECTS

Exploration of the Iron Cap deposit in 2010 significantly augmented the resource of the **KSM (Kerr-Sulphurets-Mitchell)** gold-copper-molybdenum porphyry project, located 65 km northwest of Stewart. Owner-operator Seabridge Gold Inc released an updated resource estimate in February 2011 reporting proven plus probable reserve totalling 2192.4 Mt averaging 0.55 g/t Au, 0.21% Cu, 3.04 g/t Ag and 53.2 ppm Mo. Measured plus indicated resources total 2549.3 Mt grading 0.55 g/t Au, 0.21% Cu and 57 ppm Mo using a cut-off grade of 0.5 g/t Au equivalent. Additional inferred resources total 1100 Mt grading 0.41 g/t Au, 0.17% Cu and 49 ppm Mo.



Figure 6. Fireside barite quarry mined approximately 25 000 tonnes in 2011. Photo courtesy of Fireside Minerals.

An updated pre-feasibility study released in May incorporated the February 2011 resource and the addition of the proposed Iron Cap pit resulting in an extended mine life from 37 to 52 years. Estimated initial capital expenditure is \$4.68 billion. Mining would initiate at the high-grade gold zone exposed at surface in the Mitchell deposit and continue for 40 years. Material in sequence from Sulphurets then Kerr and lastly the Iron Cap will augment mill feed and make up the last 12 years. A 120 000 t/d mill throughput feeding a conventional flotation circuit would produce a 25% copper concentrate to be shipped from Stewart. The KSM project is undergoing a joint environmental assessment as mandated by the *Canadian Environmental Act* and the *British Columbia Environmental Assessment Act*. Plans to submit an EA application were delayed due to the joint engineering study of a Snowfields-KSM mine plan.

2011 drilling comprised of resource and geotechnical drilling totalling 15 188 m. The Sulphurets deposit received the most drilling on the property totalling 34 drill holes and 11 480 m aiming to upgrade inferred and unclassified resources within proposed pit designs to the indicated category. Nine drill holes totalling 2631 m tested the up and down-dip projections of the Kerr deposit's west-dipping ore zone. Geotechnical drilling totalled 5530 m mainly at the Mitchell deposit with the primary objective to investigate underground panel cave mining viability below the proposed open pit.

The KSM porphyry deposits (Figures 7 – 12) 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 Mitchell zone comprises of schistose rocks with abundant sericite, disseminated pyrite and a strongly deformed

quartz-pyrite-chalcopyrite stockwork containing remarkably uniform copper and gold grades. The phyllic alteration assemblage appears to overprint earlier chloritic and potassic events also associated with stockwork mineralization.

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 containing higher gold and silver grades is also present at Iron Cap as quartz stockwork and breccias. Original textures are commonly obliterated by intense silicification. This mineralization style is similar to zones on the nearby Brucejack property and demonstrates the transition from porphyry to epithermal styles in the district.

The **Snowfield** deposit is bisected by mineral claims owned by Pretium Resources Inc and Seabridge Gold Inc. An updated resource estimate released in February exclusively on Pretium property, reports measured plus indicated resources totalling 1370 Mt averaging 0.59 g/t Au, 1.72 g/t Ag, 0.1% Cu and 85.5 ppm Mo. Additional inferred resources contribute 833 Mt averaging 0.34 g/t Au, 1.9 g/t Ag, 0.06% Cu and 69.5 ppm Mo.

Snowfield comprises two separate mineral zones: the Main (or North) copper-gold zone and the Upper gold-molybdenum zone. The Main zone is considered to be the upper portion of the Mitchell deposit displaced by the Mitchell thrust fault. Similar to the Mitchell deposit, the Main zone is characterized by intense quartz-pyrite-chalcopyrite crenulated stockwork. Gold occurs mainly in chalcopyrite. Mineralization in the Upper gold-molybdenum zone is characterized by disseminated pyrite and weak to moderate quartz-pyrite-carbonate stockwork in undeformed volcanic rocks. Gold occurs mainly in anhedral, disseminated pyrite.

Pretium Resources Inc signed two agreements with Seabridge Gold Inc regarding their Brucejack-Snowfield and KSM projects. The two companies agreed to mutual access in the proposed Mitchell and Snowfield pits allowing both operators to conduct stripping activities across the claim boundary (Figure 13). A mutual cooperation and confidentiality agreement was signed to enable the efficient preparation of an engineering study combining KSM and Snowfield projects as a single mine operation. Combined, the KSM, Snowfields and Brucejack deposits comprise the largest in-ground gold resource identified to date in North America. Potential quantities of metals within reserve, measured, indicated and inferred categories across the six projects approach 13.7 million tonnes copper and 4.7 million kilograms (151 million ounces) gold.

Bonanza gold intersections in 2011 at **Brucejack** have prompted aggressive follow-up development. The Project was purchased by Pretium Resources Inc in late 2010 from Silver Standard Resources for \$450 million combined cash and Pretium common shares. Eight drill rigs completed 176 drill holes totalling 73 255 m in 2011,

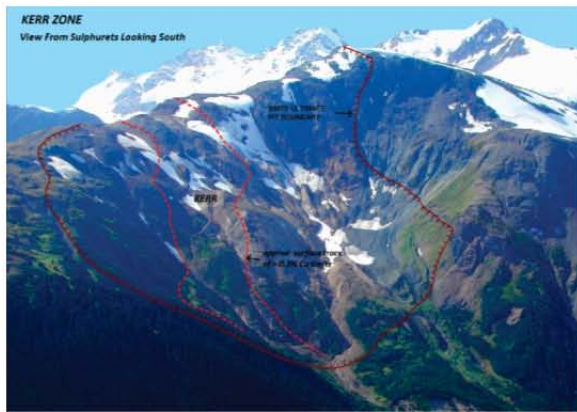


Figure 7. Kerr deposit outline with 0.3% Cu cut-off limit. Photo courtesy of Seabridge Gold.

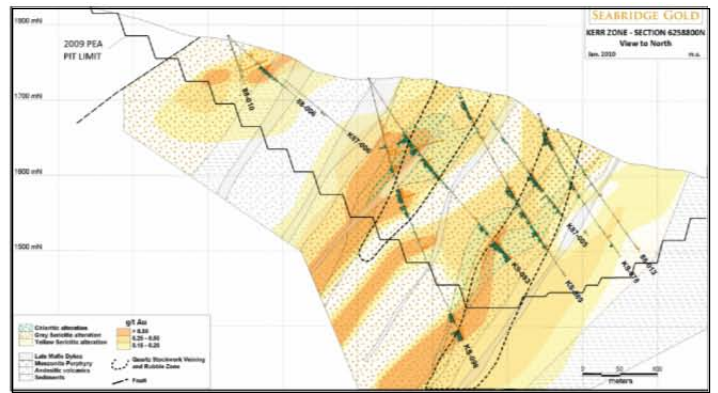


Figure 8. Kerr deposit cross-section with proposed pit outline and Au grades. Courtesy of Seabridge Gold.

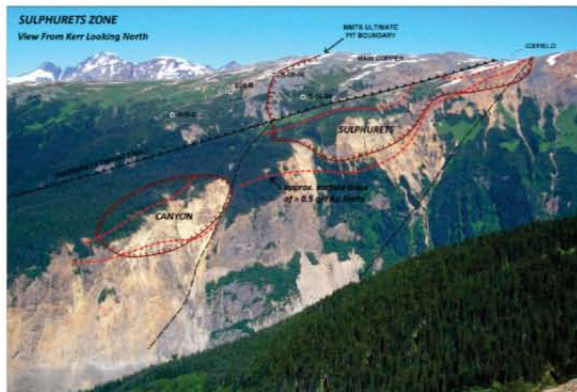


Figure 9. Sulphurets deposit outline with 0.3% Cu cut-off limit. Photo courtesy of Seabridge Gold.

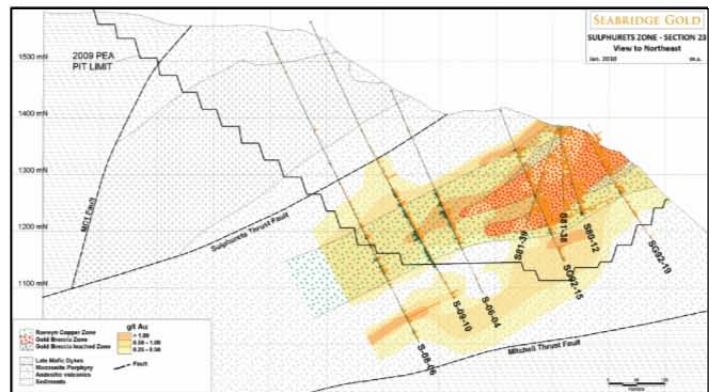


Figure 10. Sulphurets deposit cross-section with proposed pit outline and Au grades. Courtesy of Seabridge Gold.

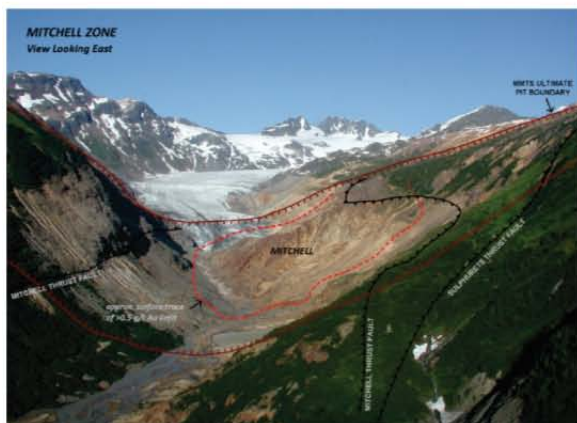


Figure 11. Mitchell deposit outline with 0.3% Cu cut-off limit. Photo courtesy of Seabridge Gold.

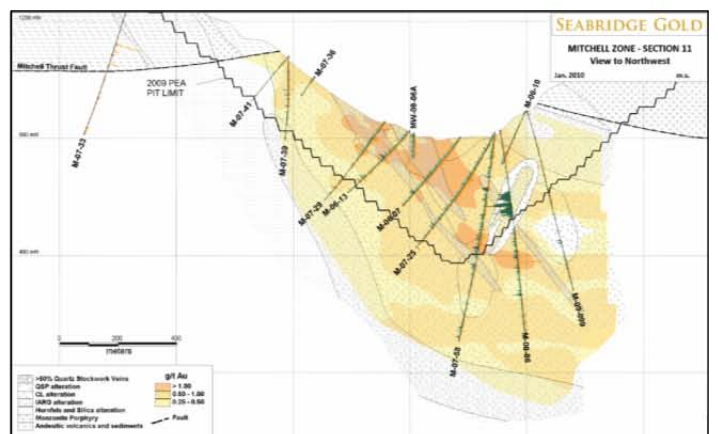


Figure 12. Mitchell deposit cross-section with proposed pit outline and Au grades. Courtesy of Seabridge Gold.



Figure 13. The Bell 407 played an integral role in Pretium Resources helicopter intensive year at Snowfields – Brucejack projects. Photo courtesy of Joel Ashburner.

all of which was helicopter supported. Multiple bonanza-grade gold intercepts from The Valley of the Kings added to an updated resource reported in late 2011. Measured plus indicated resources total 9.3 Mt grading 16.92 g/t Au and 105.6 g/t Ag. Additional inferred resources total 4.0 Mt averaging 25.67 g/t Au and 20.6 g/t Ag. Contained metal in the measured plus indicated category using a 0.30 g/t Au cut-off grade totals 365 425 kg (12.89 million ounces). Resource models are based on seven deposits including the SG, Gossan Hill, Galena Hill, Bridge Zone, Valley of the Kings, Shore Zone and West Zone. Resource data is drawn from 1190 diamond drill holes totalling 219 394 m including 452 historical surface drill holes, 442 historical underground drill holes exclusively in the West Zone, and 296 surface drill holes completed since 2009. Conservative modelling restrictions were applied uniquely to each zone to address the localized high grades in the resource estimate. Additional conservative measures were applied to modeling the Valley of the Kings Zone by capping grades at 900 g/t Au and in the West and Shore Zones at 220 g/t Au. The highest grade intercept on the property to date was drilled this year in the Valley of the Kings zone returning 0.6 m grading 18 755 g/t Au and 9312 g/t Ag. Additional

bonanza grades over 1000 g/t Au were returned across 24 intervals in 17 holes during the year (Figure 14).

Operations continue throughout the winter months, including construction of a 79 km road starting from Highway 37. Underground workings constructed between 1986 and 1989 are being dewatered in preparation for underground exploration drilling in 2012 (Figure 15). An updated preliminary economic assessment incorporating the updated resource estimate is anticipated to be completed in early 2012. A project description has yet to be submitted to initiate the environmental assessment process.

The Brucejack area is underlain by Stuhini and Hazelton Group volcanic and sedimentary rocks that strike north-northwest, dip and face to the east, and are intruded by the Mitchell-Sulphurets monzonite stocks, dated at 192.7 Ma. The mineralized area is underlain mainly by andesitic tuff and flow-rocks of the Unuk River Member (of the Betty Creek formation) and underlying sandstone (Jack Formation). The volcanic-sedimentary sequence is cut by several east-trending zones of intense, pervasive quartz-sericite-pyrite alteration containing gold-bearing quartz veins, stockworks and breccias. In a few





Figure 14. Gold vein in drill core from Brucejack. Twenty-four intercepts drilling in 2011 graded over 1000 g/t Au. Photo courtesy of Cole Mooney.



Figure 15. Eight rigs drilled 73 255 m at Brucejack between May and October this year. Underground workings pictured above are being dewatered and prepared for further development. Photo courtesy of Pretium Resources.

areas, sedimentary and volcanic horizons can be identified within the strongly altered zones, but commonly the parent rock cannot be identified. The quartz-sericite zones form a 3 km long north-south arcuate belt within 500 to 800 m of the prominent Brucejack fault. Geological mapping shows alteration and gold-silver mineralization follow the Stuhini-Hazelton contact zone. However, the relationship and timing with respect to the Mitchell-Sulphurets intrusions remains unclear.

Results released from 45 diamond drill holes (49 760 m) completed between late 2010 and April 2011 on Imperial Metals Corporation's **Red Chris** copper-gold project (MINFILE 104H 005) confirm economic copper-gold mineralization continues below the proposed 400 m open pit depth. The 49 760 m drilling program identified multiple intercepts several hundred meters in length containing mineable copper-gold values in the East, Saddle and Main zones. Best intercepts are summarized in table 2 with high-grade copper intercepts shown in

figure 17. The deposit remains open to the east and south emphasizing the size potential of this porphyry system.

Proven and probable reserves reported in May 2010 do not reflect the most recent drilling results and therefore remain un-changed at 302 Mt with an average grade of 0.359% Cu and 0.274 g/t Au. Updated measured plus indicated resources total 619 Mt with an average grade of 0.38% Cu and 0.36 g/t Au. Inferred resources total 619 Mt with an average grade of 0.30% Cu and 0.32 g/t Au. The project is to be a conventional shovel and truck open pit mine with a 30 000 t/d processing plant and conventional flotation circuit to produce an average of 337 tonnes of concentrate per day. Mine life is estimated to be approximately 28.3 years. Mine construction is scheduled to begin in 2012 upon receipt of pending *Mines Act* and related permits. Capital costs are estimated at \$443 million to construct the mill and a 115 km high voltage power line to connect to the proposed Northern Transmission Line sub-station at Bob Quinn Lake.

Deep drilling resumed in summer 2011 aiming to further define the Red Chris deposit and to explore the previously identified **Gully Zone** located over 1 km west of the proposed pit design. (Figure 16) The maximum depth in the Gully Zone was drill tested to 470 m by previous workers returning widely distributed copper-gold mineralization and strong alteration. Three drill holes have been completed in the area testing for deeper mineralization. Drilling and compilation of results are planned to continue through the winter months.

The Red Chris deposit comprises the adjoining Main, East and Saddle porphyry copper-gold zones within a monzodiorite stock dated at 204 Ma. The stock intrudes Stuhini Group volcanic rocks to the north and is overlain by, and faulted against, Bowser Lake Group sedimentary rocks to the south.

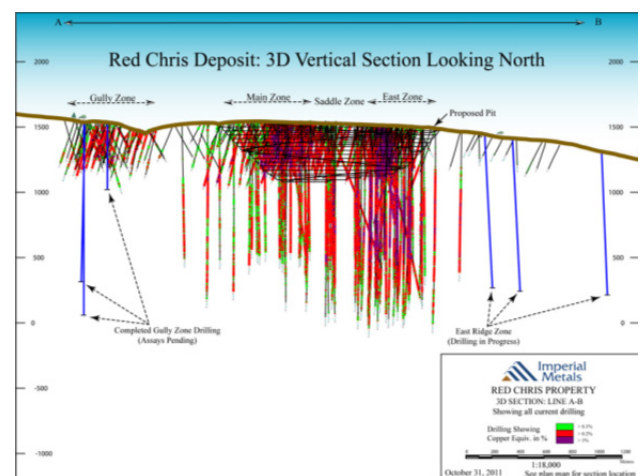


Figure 16. Red Chris deposit cross-section looking northwest with proposed pit design and Cu equivalent drilling intercepts; green > 0.1%, red > 0.2%, purple > 1.0%.

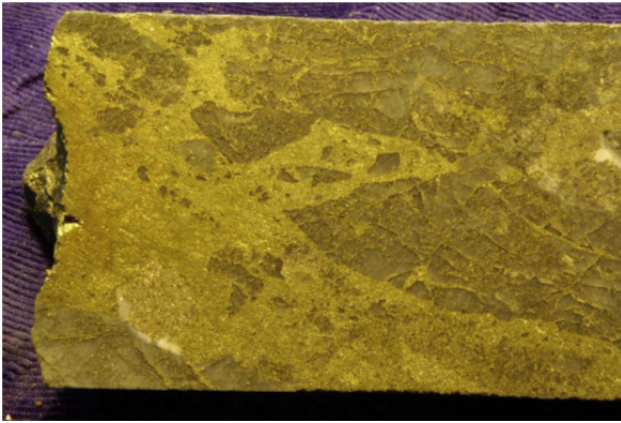


Figure 17. Massive chalcopyrite from Red Chris drill core. Photo courtesy of Imperial Metals.

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. Study of molybdenite distribution, a minor ore component, is ongoing. 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 induced polarization survey suggest a third intrusive centre may lie west of the Main zone, beneath the Gully zone.

Chieftan Metals Inc continues re-development of the past producing **Tulsequah Chief** (MINFILE 104K 002) copper-zinc-lead-silver-gold volcanic hosted massive sulphide 100 km south of Atlin. *Mines Act* permits were successfully transferred from previous operator Redfern Resources early in the year allowing development plans to proceed. Main objectives for 2011 included construction of a water treatment plant, upgrading and increasing resource categories and commencing an updated feasibility study. Initial mine site preparation commenced during the year and includes re-location of historic Potential Acid Generating (PAG) rock and grading the mine site for foundations and construction. The interim water treatment plant is scheduled to be completed later in the year with the remainder of site preparation and construction forecasted to be complete in the second quarter of 2012. The current indicated resource totals 6.0 Mt averaging 1.42% Cu, 1.23% Pb, 6.44% Zn, 2.63 g/t Au and 96 g/t Ag. Additional inferred resources total 1.1 Mt grading 0.94% Cu, 0.93% Pb, 5.0% Zn, 1.63 g/t Au and 72 g/t Ag.

Exploration included drilling on both Tulsequah Chief and satellite past producer **Big Bull** (MINFILE 104K 008). Eighty-two diamond drill holes (50 underground, 32 from surface) were completed totalling 31 181 m. Results will be incorporated into the updated

feasibility study anticipated to be released early 2012. A 2011 preliminary economic assessment using the 2007 feasibility study technical data estimated initial capital expenditure at \$310.1 million. Mine plans detail a 2000 t/d milling operation for a 9 year mine life. The 2012 updated feasibility study will also detail an optimized construction plan including new road access and improved metallurgical recovery.

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.

Capstone Mining Corporation formally initiated pre-application phase for the **Kutcho Creek** copper-zinc project (MINFILE 104I 060) by submitting a Project Description in May 2011. Wholly owned subsidiary Kutcho Creek Copper Corp operates the project approximately 100 km east of Dease Lake. A pre-feasibility study completed this year identified 10.44 Mt of probable mineral reserves averaging 2.01% Cu, 3.19% Zn, 34.61 g/t Ag and 0.37 g/t Au. Measured and indicated resources total 11.28 Mt averaging 2.19% Cu, 3.28 % Zn, 36.7 g/t Ag and 0.39g/t Au. Additional inferred resources total 1.09 Mt averaging 1.74% Cu, 2.04% Zn, 30.7 g/t Ag and 0.35g/t Au. Proposed mine life is 12 years with a processing capacity of 2500 t/d 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. This year's development focussed on environmental and socio-economic assessment and consultations towards permitting and mine development. Work programs included detailed engineering studies and a hydrogeology drilling program to support formal submission of an environmental assessment forecast for late 2011.

Exploration this year targeted electromagnetic anomalies generated by a Versatile Time Domain Electromagnetic ("VTEM") survey flown earlier this year. Nineteen drill holes were completed totalling 4227 m. Results are pending; however, one visually exciting massive sulphide intercept was encountered proximal to the known Sumac resource at shallower depth. Follow up drilling is planned.

The Kutcho property contains three known Kuroko-type volcanogenic massive sulphide (VMS) deposits (Figure 18). 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 m below surface at the western or down

**TABLE 2. RED CHRIS DEEP DRILLING HIGHLIGHTS**

<b>Drill Hole #</b>	<b>Zone</b>	<b>Depth from (m)</b>	<b>Depth To (m)</b>	<b>Interval Length (m)</b>	<b>Copper %</b>	<b>Gold g/t</b>
<b>RC10-423</b>	East	820.4	1037.3	216.9	1.15	2.44
<b>RC11-431</b>	East	172.5	1250	1077.5	0.44	0.29
<b>RC11-445</b>	Saddle	337.5	1100	762.5	0.43	0.48
<b>RC10-403</b>	Main	337.5	1237.5	900	0.25	0.22
<b>RC10-407</b>	Main	4	1030	1026	0.22	0.2

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.

Copper Fox Metals Inc received approval in 2011 for its Application Information Requirements as part of the Environmental Assessment Application for the **Schaft Creek** copper-gold-molybdenum project (MINFILE 104G 015) located approximately 60 km northwest of Bob Quinn Lake. An updated resource estimate reported in July will be used to prepare a feasibility study expected to be completed late in 2011. Measured plus indicated resources total 1010 Mt averaging 0.27% Cu, 0.017% Mo and 0.18 g/t Au. Additional inferred resources total 283.6 Mt averaging 0.24% Cu, 0.011% Mo and 0.15 g/t Au. Cut-off grades are 0.2% copper equivalent. The proposed 150 000 t/d mill and accompanying tailings facility would be located 5 km northeast of the deposit near Skeeter Lake. Copper Fox Metals has signed an agreement with Stewart Bulk Terminals Ltd in a move to secure storage and loading of concentrate from Stewart.

Field activities during 2011 included resource, geotechnical and exploration drilling and an airborne geophysical survey. Resource delineation drilling successfully extended the Paramount zone both east and west along strike and at depth. Seventeen holes were drilled totalling 6523 m including geotechnical drilling. Highlight results include 387.8 m averaging 0.49% Cu, 0.3 g/t Au, 0.04% Mo and 2.43 g/t Ag from 287 m in drill hole 2011-CF411. Geotechnical drilling focused on open pit slope design. Exploration focused on searching for high-grade starter-pit options and included five drill holes totalling 1868 m. Results from a TITAN-24 DCIP – MT (deep penetrating induced polarization-magnetotellurics) survey identified multiple extensions to zones of known chargeability. A new area of chargeability identified west of the Liard zone is sparsely drill tested with historic intercepts over 1% Cu over 10 m.

Schaft Creek is a calc-alkalic porphyry copper-gold-molybdenum deposit formed near the eastern contact of

the Hickman granodiorite batholith with Stuhini Group mafic volcanic rocks. The Galore Creek deposit is developed in alkalic rocks near the western margin of the Hickman batholith. Schaft Creek mineralization is dated at 222 Ma, nearly identical to the age of the batholith. Although not an alkalic porphyry deposit, Schaft Creek is similar to Galore Creek in that the deposit occurs in a unique part of a sub-horizontal volcanic sequence consisting of tuff, breccias and epiclastic rocks. The principal Liard zone is fault-bounded by a steep structure to the east and by a 45° east-dipping structure to the west. Recent drilling has linked the Liard and northerly Paramount zones so they are considered now to be a single zone. Thought to represent deeper portions of the porphyry, the Paramount zone is characterized by extensive igneous brecciation of a feldspar porphyry intrusion, primary igneous zoned sulphides and a higher abundance of chalcopyrite and molybdenite. The West Breccia zone lies further west, associated with a sub-vertical fault. The West Breccia zone is 30 to 200 m wide, extends more than 1000 m and consists of angular hematized fragments in a matrix of quartz, tourmaline, chlorite, specularite and sulphide minerals. The Liard zone comprises a sub-horizontal quartz vein stockwork that is developed in volcanic rocks and less abundant granodiorite dikes; this vein orientation accounts for the flat copper grade contours that characterize the deposit. Potassium feldspar alteration is pervasive in intrusive rocks and less intense in volcanic rocks where it is restricted to vein envelopes. Veins in the Liard zone are broken and disrupted on a small scale; veins commonly do not extend 10 cm without being segmented by fault-fractures. Copper mineralization is contained in chalcopyrite and bornite as stockworks, disseminations and in breccias. Molybdenite occurs as disseminated blebs and stringers in stockworks and veins.

Fortune Minerals signed a joint venture agreement with South Korean-based, multinational steel producer POSCO Canada Ltd (POSCAN) to further develop the **Mount Klappan** Coal Project. Respective wholly-owned subsidiaries Fortune Coal and POSCO Klappan Coal Ltd

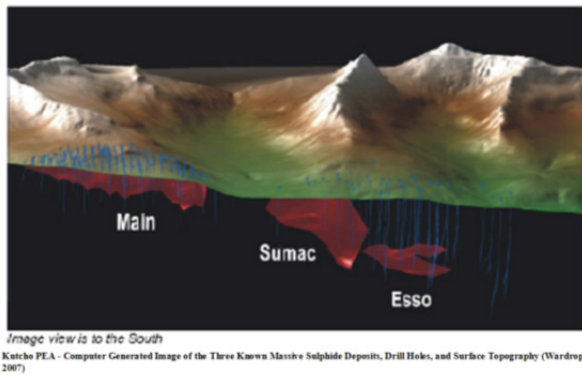


Figure 18. Kutcho Creek digital elevation model looking south with underground massive sulphide bodies Main, Sumac and Esso. Courtesy of Capstone Mining.

plan to accelerate development of the project with Fortune's local operational expertise and POSCAN's financial backing. Fortune Coal will retain 80% project ownership and continue to operate the project for the duration of the mine life. POSCO Klappan Coal Ltd acquired the remaining 20% for \$30 million; of which \$20 million will be directly spent on the joint venture and is anticipated to cover all permitting, consultation and detailed engineering costs. POSCAN is committed to funding 20% of the total development costs forecasted to be a \$154 million contribution to an estimated total \$778 million.

Mount Klappan is a significant extensively explored coal deposit located approximately 330 km northeast of Prince Rupert. The measured resource totals 107.9 Mt with additional indicated resources totalling 123.0 Mt. Inferred resources total 359.5 Mt. Plans to build and operate a 3 million tonne per year facility are financially robust and will likely be reinforced in an updated resource estimate and economic update anticipated for release in 2012. A partially constructed rail bed runs through the project area and lies 150 km north of the current terminus of track at Minaret, where Canadian National Railway operates on long-term lease. Collaboration with CN to extend the railway to the project area would provide bulk-tonnage transport to Ridley shipping terminals in Prince Rupert.

Mount Klappan coal is comprised of 33 coal horizons with a combined thickness of 11.13 m within the Upper Jurassic to Lower Cretaceous Klappan sequence within the Bowser Basin. Twelve of the 33 coal seams are considered minable. In 1985-86 a 200 000 tonne open pit bulk sample was mined and delivered high quality anthracite coal (Figure 19). Processing and washing and heavy media separation produced four main products: coarse and fine with low ash, and fines with medium and high ash content. Recovery was 67%. Updated processing aims to increase recovery.

Avanti Mining continued re-development of the past producing **Kitsault** molybdenum mine (MINFILE 103P 120) located approximately 140 km northeast of Prince

Rupert. Drilling this year totalled 9995 m and was aimed at upgrading inferred to indicated resources. Additional condemnation drilling of the proposed tailings site totalled 558 m. A feasibility study in late 2010 showing proven and probable reserves totalling 232.5 Mt averaging 0.081% Mo equating to 169 598 tonnes contained molybdenum. Measured and indicated resources total 298.8 Mt averaging 0.072% Mo and 4.20g/t Ag with additional inferred resources totalling 157.1 Mt grading 0.050% Mo and 3.65 g/t Ag. Mine life is forecast to be 16 years with an initial capital cost of \$837 million.

Kitsault operated from 1967 to 1972 and again from 1981-82 milling a total of 13.4 Mt grading 0.101% Mo (Figure 20). Total past production was 13.6 tonnes molybdenum. The site old mill site in Patsy Creek is still serviced by a mine access road and power line; however, a less constrained new mill site is required and its location is proposed 1.5 km northeast of the open pit, immediately adjacent to the proposed tailings facility.



Figure 19. 1986, Mount Klappan Coal bulk sampling. Photo courtesy of Fortune Minerals.



Figure 20. Aerial view of Kitsault. Photo courtesy of Avanti Mining.

An environmental assessment is substantially complete including new and historic environmental baseline information and is forecast to be submitted to regulators for review late in 2011.

The Kitsault property is located 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. 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. The Lime Creek Intrusive Complex hosts the main Kitsault deposit while satellite deposits **Roundy Creek** and **Bell Moly** are hosted in the Roundy Creek Intrusive complex and the Clary Creek Stock respectively.

Exploration was focussed on the **Roundy Creek** (MINFILE 103P 113) deposit located 5 km west of Kitsault. Drilling this year totalled 2803 m and returned multiple intersections averaging better than 0.1% Mo and 1.3 g/t Ag up to 66 m wide. The best result was a 12 m intersection from drill hole RC11-24 averaging 0.368% Mo and 0.6 g/t Ag including 6 m averaging 0.705% Mo.

The mineralized area is located near the head of steep north-flowing forks of Roundy Creek and, despite detailed historic work, is not well understood. Two granite stocks are present. The western body contains an internal zone of alaskite which comprises quartz porphyry, silicified quartz-feldspar porphyry and minor, but very important, banded feldspar-molybdenite rock. This is likely an unusual form of unidirectional solidification texture (UST) that occurs in some molybdenum deposits but typically consists of alternating quartz and molybdenite bands. The high-grade material at Roundy Creek is discontinuous and varies in attitude. Molybdenite is also present in a quartz stockworks.

Metal Mountain Resources Inc continued development of its **Dome Mountain** underground gold-silver mine located 35 km east of Smithers. Wholly-owned subsidiary and mine operator Gavin Mines Inc completed construction of main infrastructure components including portal re-furbishing, mine road upgrading, a water treatment plant, sediment control pond, equipment storage, office and a dry building. Seven hundred tonnes of ore are ready to be shipped with full-time production awaiting installation of an additional vent raise. Underground development is focussed on re-opening the 1290 and 1370 m levels built in 1991 (Figure 21). Discussions with Mount Polley mine to process Dome Mountain ore by sulphide floatation are ongoing and require permit approvals for additional milling. Metallurgical test work has been completed and returned positive results. The acquired *Mines Act* permit allows for a 205 t/d (up to 75 000 t/y), mechanized cut and fill operation. Over \$5 million was invested in 2011 mine development.



Figure 21. Dome project manager Daryl Hanson and company in the Boulder Vein ore heading.

The Boulder and Boulder footwall veins (MINFILE 93L 276) are current mine targets and contain a probable mineral reserve (including dilution) of 135 131 tonnes grading 11.2 g/t Au at a diluted cut-off grade of 7.9 g/t Au. The undiluted indicated resource is 144 144 tonnes grading 17.7 g/t Au at the same cut-off. The inferred resource is 113 671 tonnes at 13.6 g/t Au. Dome Mountain comprises eight (or more) gold-bearing orogenic quartz veins within volcanic and sedimentary rocks of the Hazelton Group. The mine operated during 1991-1992 and produced 361.4 kg of gold (11 621 oz) from 30 890 tonnes of ore. 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 generally associated with pyrite.

Eagle Plains Resources Ltd has created wholly owned subsidiary Yellowjacket Resources Ltd to continue mining and development of the **Yellowjacket** gold property (MINFILE 104N 043). Yellowjacket Resources Ltd owns 100% of the mineral and placer rights of the project area. Late 2010 drilling results reported in early January 2011 returned several gold-bearing intercepts. Sixty-four reverse circulation drill holes totalling 2181 m were completed. Best intercept was from drill hole L100E-60B returning 6.09 m grading 26.8 g/t Au. A *Mines Act* permit granted in 2009 allows for open pit mining with an on-site 400 t/d gravity separation mill. Annual processing capacity can be up to 75 000 tonnes. A resource estimate is not available but mine plans include several open pits entirely within an area of disturbed and likely gold-bearing placer workings. Pit depths are approximately 30 m and do not require blasting due to friable, strongly clay altered bed rock. Native gold occurs within sub-vertical quartz veins and enveloping listwanite zone proximal to the 20 m wide Pine Creek Fault.

In November, NovaGold Resources Inc announced its intent to sell part or all of its 50% ownership in the Galore Creek (MINFILE 104G 090) copper-gold project. Project partner, Teck completed their funding obligation of \$373.3 million to attain 50% ownership of the project in June. An updated pre-feasibility study in July detailed an economically viable path to bringing the project closer to fruition. Fundamental changes to the mine plan include relocation of the tailings and processing facilities, realignment of access road and tunnel, and an increase of mill throughput. Total expected capital expenditure including construction and sustaining costs total \$5.84 billion. The study details a 95 000 t/d milling and concentrating facility with a 17.6 year mine life. Planned work for the 2011 season included infill drilling to upgrade inferred to measured and indicated resource categories, and geotechnical drilling on both tunnel realignment and to confirm open pit slopes in areas targeted for conversion of inferred mineral resources. Environmental and engineering work continued in preparation for a planned feasibility study. Galore Creek is a porphyry copper deposit associated with Triassic alkalic intrusive rocks (Figure 22). Proven and probable reserves total 528 Mt averaging 0.58% Cu, 0.32 g/t Au and 6.02 g/t Ag. Additional measured plus indicated resources total 286.7 Mt averaging 0.33% Cu, 0.27 g/t Au and 3.64 g/t Ag. Inferred resources total 346.6 Mt averaging 0.42% Cu, 0.24 g/t Au and 4.28 g/t Ag.

The **Morrison** copper-gold project (MINFILE 93M 007) is located 70 km northeast of Smithers and owned by Pacific Booker Minerals Inc. The project entered the Environmental Assessment process in 2010 but has been suspended due to the need to further study environmental data. An independent review of environmental baseline data acquired by Pacific Booker is being conducted.

Pacific Booker Minerals Inc proposes to build an open pit mine to operate at 30 000 tonnes per day. 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.

Hawthorne Gold Corp changed names to become China Minerals Mining Corporation in April this year and remains in control of past producing **Table Mountain** gold mine.(MINFILE 104P 012). No significant fieldwork was conducted.

## MINERAL EXPLORATION

There were at least 89 active major exploration projects in the Skeena district this year (Table 3). The following exploration section has been sub-divided into deposit type and geological district. All major exploration projects are detailed in table 3. Projects with greater than \$500,000 expenditure in 2011 are summarized in the following text.

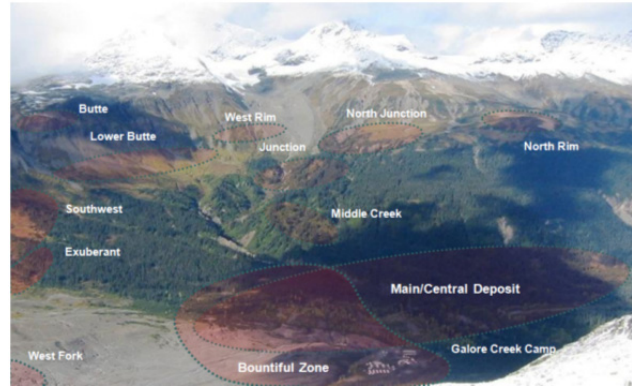


Figure 22. Aerial view of Galore Creek deposits.

## 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 of 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 Mitchell, Sulphurets, Snowfield and Bronson Slope deposits.

Porphyry copper-molybdenum prospects predominate in the Skeena district. Some copper-gold prospects occur but the gold content is appreciably less relative to the Iskut-Stikine district. Skeena district porphyry prospects are all contained in post-accretion intrusions including the extensive late Cretaceous Bulkley and more localized Eocene Nanika and Babine calkalinic 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)

### *Porphyry Copper-Gold Projects in Stikine Terrane, Iskut District*

Bolero Resources Corp tested the **Red Chris South** copper-gold porphyry target with three drill holes totalling 1100 m. Targets included induced polarization geophysical anomalies; one of which is coincident with elevated copper-gold Mobile-Metal-Ion (MMI)

**TABLE 3. SIGNIFICANT EXPLORATION PROJECTS SKEENA DISTRICT, 2011**

<b>Property Name</b>	<b>Operator</b>	<b>MINFILE (or NTS)</b>	<b>Commodity</b>	<b>Deposit Type</b>	<b>Work Program</b>
Ax	Pacific Bay Minerals Ltd.	104P 106	Ag, Pb, Zn, Cu	Skarn	GC, P
BA; George Copper	Great Bear Resources Ltd., Mountain Boy Minerals Ltd.	104A 178	Ag, Zn, Pb	Massive sulphide	GC, G
Babine	Astorius Resources Ltd.	093L 209	Cu	Porphyry	GC
Ball Creek	Paget Minerals Corp.	104G 018	Cu, Au	Porphyry	DD (1060 m, 8 holes)
Bear River; Tide North	Auramex Resources Corp.	104A 024	Au	Vein	GC
Bell Moly	Avanti Mining Inc.	103P 234	Mo	Porphyry	G
Berg	Thompson Creek Metals Company Inc.	093E 046	Cu, Mo	Porphyry	DD (10 678 m, 36 holes)
Big Hammer	Jet Gold Corp.	103O 013	Au, Ag, Te	Vein	DD (830 m, 11 holes), GC, TR
Bonsai	Copper Creek Gold Corp.	104B 383	Au, Ag, Zn, Cu	Massive sulphide	DD (944 m, 4 holes) GC
Bronson Slope	Skyline Gold Corp.	104B 077	Au, Cu, Fe	Porphyry, Vein	DD (1812 m), GC, G, P
Brucejack	Pretium Resources Inc.	104B 193	Au, Cu	Porphyry	DD (73 255 m)
Cassiar	Cassiar Jade Contracting	104P 005	Jade	Shear vein	Mining
Cassiar Gold : Table Mountain	China Minerals Mining Corp.	104P 012	Au	Orogenic Vein	Corporate
Chist Creek	Paget Minerals Corp.	103I 185	Cu, Zn, Au, Ag	Massive sulphide	DD (750 m, 4 holes)
Clone	Teuton Resources Corp.	103P 251	Au	Shear vein	MS, BU(102)
Coles Creek	Callinex Mines Ltd.	093E 041	Cu, Au	Porphyry	DD (4579 m, 11 holes)
Columario	Argonaut Exploration Inc.	103I 077	Au	Vein/ Breccia	DD (2600, ), G, A
Copper Creek	Firesteel Resources Inc.	104J 035	Cu, Au	Porphyry	G, P, GC
Davidson	Thompson Creek Metals Company Inc.	093L 110	Mo	Porphyry	Corporate
Deeker Lake	TTM Resources Inc.	104G 014	Mo, Cu	Porphyry	GC, G
Deer horn	Deer Horn Metals Inc.	093E 019	Te, Au, Ag, W, Mo	Vein/ Breccia	DD (3773 m, 55 holes), AB-MG, G, GC, TR (300 m)
Dilworth/ Big Missouri	Ascot Resources Ltd.	104B 092	Au, Ag	Epithermal	DD (36 318 m, 150 holes)
Dirk	Romios Gold Resources Inc.	104B 336	Cu, Au	Massive sulphide	DD (743 m, 4 holes), GP, AB-EM(743KM)

**TABLE 3. CONTINUED**

<b>Property Name</b>	<b>Operator</b>	<b>MINFILE (or NTS)</b>	<b>Commodity</b>	<b>Deposit Type</b>	<b>Work Program</b>
Dome Mountain	Metal Mountain Resources Inc.	093L 022	Au	Orogenic Vein	MD
Dunwell	Mountain Boy Minerals Ltd.	103P 052	Au, Ag	Vein	DD (30 holes)
Elsiar	Blackrock Resources Ltd.	103I 229	Cu, Mo, Au	Intrusion Vein	IP (10km)
Endako	Thompson Creek Metals Company Inc.	093K 006	Mo	Porphyry	DD (12 824 m)
Engineer	BCGold Corp.	104M 014	Au	Epithermal vein	DD (1500 m), BU(400), AB-EM, -MG (600 km), MS, GC
Fireside	Fireside Minerals Ltd.	094M 003	Barite	Vein	DD (500 m)
Fireweed	Shamrock Entreprises Inc.	093M 151	Ag, Zn, Pb	Manto, vein	DD (1500 m )
Galore Creek	NovaGold Resources Inc., Teck Resources Ltd.	104G 090	Cu, Au	Porphyry	MD
Gj, Kiniskan	NGEx Resources Inc., Teck Resources Ltd	104G 034	Cu, Au	Porphyry	DD (4307 m,10 holes), IP(145 km), G, P, MG(125 km)
Georgie River	Auramex Resources Corp.	103O 013	Au	Vein	GC
Golden Eagle	Troymet Exploration Corp.	104M 044	Au	Vein/ Breccia	DD (867 m, 6 holes), IP(10.5 km)
Granduc	Castle Resources Inc	104B 021	Cu	Massive sulphide	DD (31 000 m, 64 holes), EN, A
Haskins-Reed	Pacific Bay Minerals Ltd.	104P 021	Zn, Pb, Ag, Mo	Skarn	DD (1245 m, 9 holes)G, GC, TR(214 m)
High	Teuton Resources Corp.	104B	Au, Cu	Porphyry	DD (1225 m )
Horseshoe	Castle Resources Inc	104A 011	Au, Ag	Vein	DD (2000 m, 6 holes)
Homestake Ridge	Bravo Gold Corp.	103P 216	Au, Ag, Cu	Epithermal vein	DD (7364 m, 23 holes), GC, GP, IP(15 km), EN
Huckleberry	Huckleberry Mines Ltd.	093E 037	Cu, Mo	Porphyry	TITAN, NSAMT
Icy Lake, Fae, Slam	Paget Minerals Corp.	104K 032	Cu, Mo	Porphyry, Epithermal	DD (1479 m, 4 holes)
Jennings	Agnico-Eagles Mines Ltd.	104O 049	Mo, W	Skarn	GC
Kinskuch	Bravo Gold Corp.	103P 216	Au, Ag	Vein/ Breccia	DD (855 m, 4 holes), AB-GP (3 820 km)
Kitsault	Avanti Mining Inc.	103P 120	Mo	Porphyry	DD (13 350 m, 32 holes), CD(665, 12)



TABLE 3. CONTINUED

Property Name	Operator	MINFILE (or NTS)	Commodity	Deposit Type	Work Program
KSM	Seabridge Gold Inc.	104B 103	Au, Cu	Porphyry	DD (15 188, 44), GD(5530 m, 19 holes)
Kutcho Creek	Capstone Mining Corp.	104I 060	Cu, Zn, Au, Ag	Massive sulphide	DD ( 4 227 m, 19 holes)
Letain	First Point Minerals Corp.	104I 053	Ni	Magmatic	GC, G
Lone Pine	Bard Ventures Ltd.	093L 027	Mo	Porphyry	DD (2400 m)
MB silver	Mountain Boy Minerals Ltd.	104A 011	Ag, Au	Vein	DD (5000 m )
MC Dalhousie	Reliant Gold Corp.	104A 041	Au	Skarn	DD (710 m, 3 holes)
Morrison	Pacific Booker Minerals Inc.	093M 007	Cu, Au	Porphyry	Enviro
Mount Klappan	Fortune Minerals Ltd.	104H 022		Coal	Corporate
Newmont Lake	Romios Gold Resources Inc.	104B 281	Au, Ag	Skarn	DD (400 m)
Ootsa Lake	Gold Reach Resources Ltd.	093E 105	Cu, Au	Porphyry	DD (10 393 m), IP(44.5km), GP
Poly	Frontline Gold Corp.	104A 177	Au, Ag	Massive sulphide	DD (1170 m, 4 holes), GC, G
Poplar	Lions Gate Metals Inc.	093L 239	Cu, Mo	Porphyry	DD (16 481 m, 42 holes)
Porphyry Creek	Duncastle Gold Corp	093M 061	Cu, Mo	Porphyry	DD (2583 m, 6 holes)
Provencher Lake	Cassiar Jade Contracting	104I 092	Jade		Mining
Red Chris	Imperial Metals Corp.	104H 005	Cu, Au	Porphyry	DD (17 770 m) enviro
Red Chris South	Bolero Resources Corp.	104H 011	Cu, Au	Porphyry	DD (1100 m,3 holes), G, GC
Red Cliff	Decade Resources Ltd.	104A 033	Au	Vein/ Breccia	DD (? , 44), A
Roundy Creek	Avanti Mining Inc.	103P 113	Mo	Porphyry	DD (2803 m, 26 holes)
Schaft Creek	Copper Fox Metals Inc., Teck Resources Ltd	104G 015	Cu, Mo, Au	Porphyry	DD (3444 m)
Shan South	BCM Resources Corp.	103I 114	Mo	Porphyry	DD (3366 m, 13 holes)
SIB	Eskay Mining Corp	104B 376	Au, Ag, Zn, Cu	Massive sulphide	GP
Silver Coin	Jayden Resources Inc.	104B 150	Au, Ag, Pb, Zn	Epithermal vein	DD (17 500 m, 115 holes), MS, EN
Silver Queen	New Nadina Exploration Ltd.	093L 002	Cu, Mo, Au	Porphyry, Vein	DD (5000 m), AB- MG

TABLE 3. CONTINUED

Property Name	Operator	MINFILE (or NTS)	Commodity	Deposit Type	Work Program
Silver Hope	Finlay Minerals Ltd.	093L 256	Cu, Mo, Ag	Porphyry	DD (6090 m, 13 holes), IP(30 km)
Silverknife	Teryl Resources Corp.	104O 048	Ag, Pb, Zn, Au	SedEx	P, GP, G, DD(?)
Silvertip	Silvercorp Metals	104O 038	Ag, Pb, Zn, Au	SedEx	D (3500 m), MS
Snowfield	Pretium Resources Inc.	104B 179	Au, Cu, Mo, Re	Porphyry	MD
Sphinx	Pacific Bay Minerals Ltd.	104I	Au, REE		GC, P
Stewart	Frontline Gold Corp.	104A 177	Au, Cu	Porphyry	GC, G
Storie	Columbia Yukon Explorations Inc.	104P 069	Mo	Porphyry	PEA, EN, GC
Tanzilla	West Cirque Resources Inc.	104I 023	Cu	Porphyry?	G, GC, IP(16km)
Tennyson	Teuton Resources Corp.	104B 167	Cu, Au	Porphyry	DD (3123 m)
Terrace	TTM Resources Inc.	103I 165	Mo	Porphyry	DD
Trapper Gold	Ocean Park Ventures Corp.	104K 078	Au	Unknown	DD (8500 m, 42 holes), GC, G, AB-EM, IP
Trek	Romios Gold Resources Inc.	104G 022	Cu, Au	Porphyry	DD (7342 m, 14 holes, IP (2.4 km)
Troitsa	Callinex Mines Ltd.	93E 005	Au, Cu	Porphyry	DD (? , 8)
Tulsequah Chief	Chieftain Metals Inc.	104K 002	Cu, Zn	Massive sulphide	DD (31 181 m, 82 holes)
Turnagain	Hard Creek Nickel Corp.	104I 119	Ni, Co, Pt	Magmatic	Enviro, Met
Vines Lake	Lomiko Metals Inc.	104P 021	Ag, Pb, Zn, Au	Vein	DD(295 m,1 hole), GC
Wann River	Blind Creek Resources Ltd.	104M 026	Au	Vein	DD(3325 m, 17), GC, G ,P
Wedeeene	Decade Resources Ltd.	103I 169	Cu, Au	Vein, Porphyry	GC, IP
Yellow Chris	Teuton Resources Corp	104H 061	Cu, Au	Porphyry	GC
Yellow Giant	Banks Island Gold Ltd.	103G 021	Au	Vein	DD (563 m, 8 holes), MS, AB-EM (1000 km), PEA, EN
Yellow Jacket	Eagle Plain Resources Ltd.	104N 043	Au	Vein/ Breccia	Mapping
Zymo	Eastfield Resources Ltd, Bearing Resources Ltd.	093L 324	Cu, Au	Porphyry	DD (3454 m, 11 holes), IP (30 km), P, GC

**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 = geotech drilling; GP = geophysics (general); IP = Induced Polarization; 3D-IP; MG = magnetics; MK = marketing (primarily for industrial mineral products); MS = metallurgical studies; OB = overburden drilling; OP-BU = open-pit bulk sample; P = prospecting; PD = percussion drilling; PF = pre-feasibility studies; PP = Pilot Plant; R = reclamation; RC = reverse circulation drilling; TR = trenching; UG (Xm) = X metres of underground development; UG-BU= underground bulk sample; UT = UTEM; VLF; WT = washability te

geochemistry. Results are pending. The prospect includes the Ram showing (MINFILE 104H 011) and is underlain by felsic volcanic and volcanoclastic rocks of the Lower Jurassic Hazelton Group.

Western Cirque Resources (formerly Sila Industrial Group Ltd) discovered the **West Gossan Zone** while exploring the company's 100% owned **Tanzilla Property** during their 2011 mapping and sampling campaign (Figure 23). The West Gossan is comprised of epithermal quartz-carbonate stockwork veining with variable concentrations of chalcopyrite, sphalerite and galena. Peripheral chlorite-sericite and localized intense silicification can be traced for over 500 m along strike. Grab samples returned values up to 6.59 g/t Au and 3.6 % Zn. The Tanzilla prospect is a copper-gold porphyry target hosted in Stikine terrane Triassic arc assemblages. The area is defined by two alteration centers within a 7.5 km trend of advanced argillic and phyllic alteration. Elevated copper-in-soil and a newly reported 2.2 by 0.6-1.5 km zone of chargeability continue to make this prospect one of significant interest.

Exploration on the **GJ (Kinaskan)** property was led by Teck under option agreement with NGEx Resources Inc (Figure 24). Mineralization is related to the east-northeast trending Groat stock and is similar to the geologic setting at Red Chris deposit 25 km to the northeast. The Donnelly Zone (MINFILE 104G 086, 034) is the primary showing and hosts disseminated and vein-concordant chalcopyrite. The zone extends over 1600 m in strike-length and up to 300 m wide with highest grades found on the northern margin. Measured plus indicated resources reported in October 2008 total 153.3 Mt averaging 0.321% Cu and 0.369 g/t Au. Additional inferred resources total 23 Mt grading 0.26% Cu and 0.31 g/t Au. All resource estimates use a 0.20% copper cut-off. Ten drill holes totalling 4307 m in 2011 aimed to increase resource estimates through extensions and at depth. One high priority target included a zone of strong potassic alteration east of the resource area with limited drill testing. Significant drilling results included 141.2 m in hole GJK-11-219 averaging 0.38% Cu and 0.53 g/t Au from 506.08 m depth. Further geophysics totalling 125 km of ground magnetics and 145 km of induced polarization were distributed between extensions of the resource area and new targets across the outcrop-poor alpine plateau.

Paget Minerals Corp conducted a review of all historic work completed on the Ball Creek gold-copper-molybdenum-silver project (MINFILE 104G 018) prior to drilling 1060 m in 8 holes. The property consists of 5 gold-copper-molybdenum-silver porphyry targets and 4 gold-silver epithermal vein targets centrally located between Galore Creek, Schaft Creek and Red Chris mine development projects. Drilling objectives included Upper Rainbow epithermal target, the North Rainbow porphyry target and a deep test of the Ball Creek porphyry target. Drill results are pending. The area is underlain by welded tuff, agglomerate lithic tuff, flows and breccias of Upper



Figure 23. Prospecting discovered the West Gossan zone on the Tanzilla property during 2011.



Figure 24. GJ exploration camp. Photo acquired from Unuk River Flickr post.

Triassic age which have been intruded by an early Jurassic monzonite stock.

Paget drilled an additional four holes totalling 1479 m on its **Icy Lake**, **Fae** and **Slam** properties all located within 12 km of each other and approximately 125 km west of Dease Lake. The Icy Lake (MINFILE 104K 032) and Fae projects target copper-molybdenum porphyry-style mineralization hosted in Triassic-Jurassic diorite and monzonite intruding undivided Stikine arc volcanic rocks. The Slam property (MINFILE 104K 082) is a gold-silver prospect hosted in pervasively silicified and locally dolomitized and brecciated Permian limestone. Mineralization is similar to that found at the past producing Golden Bear Mine.

Romios Gold Resources Inc continued to explore the "Golden Triangle" immediately south of the Galore Creek mine development. Romios completed airborne, ground and down-hole geophysical surveys as well as 7342 m of drilling the Trek copper-gold porphyry prospect (MINFILE 104G 022) located 12 km southeast of Galore Creek. Targets were refined from geophysical anomalies

identified from last year's TITAN 24 survey and combined with early 2011 results. The Tangle and North zones were the focal points of activity. The North zone consists of chalcopyrite-bearing veins and fracture zones associated with northeast trending, pink monzonite dikes that are 0.2 to 10 m wide. New pyrite-chalcopyrite-tetrahedrite cemented breccias discovered at depth below the North Zone by drill hole TRK11-32 returned 22.1 m averaging 1.25% Cu, 22.43 g/t Ag and 0.05 g/t Au from 727.16 m depth. Additional follow-up drill results are pending.

Romios completed their first drill program on the **Dirk** copper-gold porphyry project located approximately 40 km west of Bob Quinn Lake. Both the '72 and Telena zones were targeted with four drill holes totalling 743 m. Highlight results include near-surface copper-gold-silver-bearing breccias and intrusive rocks. Drill hole DRK11-01 in the '72 zone returned 63.35 m averaging 0.29% Cu, 0.25 g/t Au and 2.93 g/t Ag from 14.65 m depth.

The **Newmont Lake** project (MINFILE 104B 281) is immediately east of the Dirk property and 30 km southwest of Galore Creek. Romios Gold Resources Inc acquired 100% interest in the project purchasing the outstanding 25% from Gulf International Minerals Ltd in 2011. An inferred resource of 1.406 Mt grading 4.43 g/t Au, 0.22% Cu and 6.4 g/t Ag is estimated to be contained in the Northwest Zone.

Teuton Resources Corp doubled their ground position around the **High** gold-silver property located 50 km north of Stewart and immediately south of Pretium Resources Brucejack project. Teuton continues to search for gold along extensions to the Brucejack fault with plans to drill 1225 m.

Teuton completed 3123 m of drilling in 14 holes on the **Tennyson** (MINFILE 104B 167) copper-gold porphyry project located 40 km north of Stewart. A highlight intercept from hole TN11-14 returned 106.6 m averaging 0.24 g/t Au and 0.42% Cu from 54.6 m. Some sites including TN11-14 collared in glacial ice.

Skyline Gold Corporation drill tested the Fuchsite zone and Johnny Creek showing located in the Snip-Bronson trend and part of the **Iskut River** project (MINFILE 104B 312). The property includes the **Bronson Slope** gold-copper porphyry deposit (MINFILE 104B 077) and is located southeast of the past-producing Snip gold mine. Three holes were completed totalling 1812 m aimed to increase understanding of structural controls and alteration assemblages associated with high-grade gold along the Snip-Bronson trend. Down-hole electromagnetic surveys were scheduled to be performed on all holes before demobilizing for the winter. Drilling results were expected late in 2011. The total measured plus indicated resources of the Bronson porphyry is 186.9 Mt averaging 0.122% Cu, 0.36 g/t Au, 2.19 g/t Ag and 5.3% Fe<sub>2</sub>O<sub>3</sub>.

## ***Porphyry Copper-(Molybdenum-Gold) Projects in the Skeena Arch***

Finlay Minerals Ltd completed two phases of drilling totalling 6180 m in 14 drill holes on its **Silver Hope** project. The property is located 36 km southeast of Houston and immediately south along strike of the past producing Equity Silver mine. Drilling was split between follow-up of a 2010 discovery of a copper-molybdenum-bearing quartz monzonite in the West Horizon and Equity-style gold-silver-copper mineralization in the Main Horizon. Six drill holes focused on defining the boundaries of the porphyry discovery in the West Horizon. Highlights include 101.4 m in hole SH11-05 grading 0.36% Cu and 0.015 % Mo from 51.5m. A separate high-grade intercept, also in SH11-05, returned 5.0 m averaging 1.16% Mo, 1.88 g/t Au and 65 g/t Ag from 296.0 m (Figure 25). Four drill holes targeting the centrally-located Superstition Zone (part of Main Horizon) intersected grades similar to those mined at the nearby Equity Silver Mine. Drill hole SH11-12 returned 76 m grading 0.43 g/t Au, 29 g/t Ag and 0.20% Cu from 204 m including 0.6 m averaging 3.2g/t Au and 747 g/t Ag from 265.4 m. Four holes in the East Horizon targeting a chargeability anomaly intercepted weak pyrite-pyrrhotite mineralization.

In December 2010, Duncastle Gold Corp announced the discovery of a copper-molybdenum porphyry system near the **Sultana** prospect (MINFILE 093M 061) on the southeast portion of the **Porphyry Creek** project located 20 km northwest of Smithers. A follow-up six hole program totalling 2583 m was completed in 2011. Highlights include 226 m averaging 0.09% Cu and 0.01% Mo including 31.0 m averaging 0.14% Cu and 0.02% Mo from hole PC11-06. The porphyry system is at the eastern margin of the Rocher Deboule granodiorite stock, a Cretaceous Bulkley pluton.

**Zymo** (MINFILE 093L 324) is a copper-gold porphyry prospect discovered in 2007 by Eastfield Resources Ltd and located 45 km west of Smithers. This year, Eastfield completed a 3454 m drill program in eleven holes: seven at the Hobbes zone, two at the FM zone and two at the untested URC zone. Assays are pending. Additional exploration included 30 km of induced polarization surveying, prospecting, soil and stream geochemical sampling. The Zymo prospect is located on the contact between Lower Cretaceous metasedimentary rocks of the Skeena Group and a Cretaceous granodiorite stock.

**Silver Queen** (MINFILE 093L 002) is located 43 km south of Houston and is known historically as a polymetallic vein system with past production of gold, silver, zinc, lead, copper and cadmium. New Nadina Explorations Ltd drilled 4490 m in thirteen holes in 2011 and discovered copper-molybdenum porphyry mineralization - a possible source to historic vein systems (Figure 26). Drill targets were generated from 3D inversions of geophysical surveys, including airborne



Figure 25. Molybdenum fracture-fill breccias intercepted in drill hole SH11-05; 5.0 m averaging 1.16% Mo, 1.88 g/t Au, 65.4 g/t Ag from 290 m.

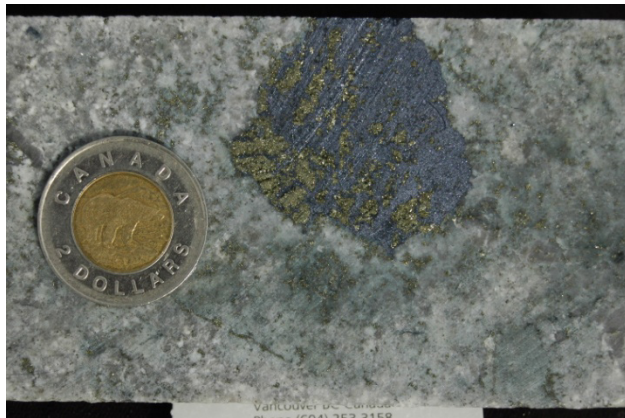


Figure 26. Drilling at Silver Queen intercepted porphyry style Cu-Mo mineralization in three holes including DDH 11S-13 pictured above. Photo courtesy of New Nadina Explorations.

aeromagnetic, ZTEM and follow-up Titan 24 ground surveys. Combined, these surveys identified a 2.5 km long trend extending from the known Silver Queen vein system. Stockwork and porphyry-style mineralization were encountered in holes 11S-01 and 11S-03. Best results include 79.6 m averaging 0.123 g/t au, 0.23% cu and 0.001 % Mo.

The **Poplar** property (MINFILE 093L 239) is located 45 km southwest of Houston and 35 km northeast of the producing Huckleberry Mine. Lions Gate Metals Inc completed 16 481 m of drilling in 42 holes targeting the copper-molybdenum porphyry system associated with the late Cretaceous Poplar intrusive stock. Highlight intercepts include hole 11-PC-88 returning 496.21 m averaging 0.35% Cu, 0.10 g/t Au and 0.015% Mo, including 298.21 m averaging 0.44% Cu, 0.13 g/t Au and 0.022% Mo. In September, the company reported an inferred resource of 245 Mt averaging 0.27% Cu and 0.007% Mo using a 0.15% cut-off. Phase two drilling results will be incorporated into an updated resource estimate which will include gold and silver resource estimates and is expected to be released early 2012. Preliminary metallurgical testing has been initiated.

Gold Reach Resources Ltd owns the **Ootsa Lake** copper-gold-molybdenum porphyry property (MINFILE 093E 105) south of the Huckleberry copper-molybdenum mine. Three target areas make up the Ootsa project: the Seel and Ox lake porphyry deposits and the Damascus silver vein. This year's drilling totalled 10 393 m in 20 holes focused on the Seel deposit. Results identified new mineralization and extended the deposit to 700 m vertical depth. Significant intercepts include hole S11-97 returning 419.5 m averaging 0.23% Cu, 0.15g/t Au, 0.025% Mo and 3.9 g/t Ag from 120 m. An updated resource estimate is forecast for release in early 2012. Additional field work included 44.5 km of line cutting and induced polarization geophysical surveys connecting previously completed grids covering the Ox and Seel deposits. Multiple new anomalies were identified with follow up programs planned for 2012.

The **Berg** property is a copper-molybdenum-silver porphyry deposit (MINFILE 093E 046) located approximately 84 km southwest of Houston and 22 km northwest of the Huckleberry mine. The property is owned by Berg Metals Limited, a wholly-owned subsidiary of Thompson Creek Metals Inc. Activity included 36 holes totalling 10 678 m aiming to increase resources and upgrade indicated to measured resources. Using a 0.3% Cu equivalent cut-off, measured plus indicated resources effective June 2009 totalled 557.8 Mt averaging 0.3% Cu, 0.037% Mo and 3.12 g/t Ag. Inferred resources total 159.4 Mt averaging 0.23% Cu, 0.033% Mo and 2.07 g/t Ag. The area is underlain by volcanic and sedimentary rocks of the Jurassic Hazelton Group intruded by an 800 m diameter circular quartz monzonite porphyry; the Berg stock. Pyrite, chalcopyrite and molybdenite mineralization occurs in a highly fractured zone of hornfelsed andesite, adjacent diorite and to a lesser degree the Berg Stock.

## Porphyry Molybdenum Projects

“Molybdenum prospects cluster in Cretaceous to Tertiary plutons postdating terrane accretion to North America. There are two distinct areas of concentration, the Skeena Arch and the Atlin-Cassiar area. Skeena Arch molybdenum deposits are found in a number of intrusive suites: the early Tertiary Alice Arm and Nanika intrusions, late Cretaceous Bulkley intrusions and the Jurassic Francois Lake batholith. In the Atlin-Cassiar area, molybdenum occurs mainly in late Cretaceous batholiths, the Surprise Lake and Cassiar batholiths in particular and also in Tertiary rocks.

Molybdenum deposits can be divided into batholith-hosted and stock-hosted types based on host intrusion, deposit morphology and alteration. Those found in granite batholiths are developed in passive environments and consist of widely spaced molybdenite vein networks containing little quartz. Deposits are laterally extensive, forming tabular shaped bodies. Examples include the

Endako mine and the Ruby Creek and Storie deposits. Stock-hosted molybdenum deposits are associated with small, intermediate to silicic intrusions formed in a high energy, commonly explosive environment. An intense quartz stockwork is developed above the intrusion or as a vertical annular zone around it. Multiple stages of mineralization are common and can lead to higher grade and stacked mineral zones. These include the Davidson, Lucky ship, Lone Pine, Mount Haskins and the Alice Arm deposits including Kitsault.” (revised from Wojdak, 2010).

### ***Molybdenum in the Atlin – Cassiar District***

Columbia Yukon Explorations Inc acquired adjacent mineral claims in March as an alternate tailings and mill site for proposed development of the company’s **Storie** molybdenum project (MINFILE 104P 069) located near Cassiar. A preliminary economic assessment is expected in late 2011 with feasibility study work commencing in 2012. Molybdenite mineralization occurs as fracture coatings and vein-concordant disseminations concentrated in a sub-horizontal tabular zone between texturally distinct phases of the Troutline stock, part of the late Cretaceous Cassiar batholith.

### ***Molybdenum in the Skeena Arch***

Bard Ventures Ltd completed 2400 m of drilling this summer on its **Lone Pine** molybdenum copper porphyry property (MINFILE 093L 027, 028) located 15 km north-northwest of Houston. Drilling focused on three zones: Alaskite, Quartz Breccia and 61. A preliminary economic assessment released in January for the Alaskite zone reports positive economics. An updated resource estimate released in October reports measured plus indicated resources totalling 146.4 Mt averaging 0.069% Mo and 0.034% Cu. Additional inferred resources total 16.7 Mt averaging 0.081% Mo and 0.034% Cu using a 0.04% Mo cut-off. Forecast mine life is 12 years with a pre-production capital expenditure estimated at \$435 million. Exploration drilling highlights include 573.4 m from hole BD-11-67 averaging 0.10% Mo in the Alaskite zone. Mineralization at Lone Pine is developed in the quartz porphyry marginal phase of a granite stock. The Alaskite zone consists of coarse-grained granite with aplitic vein-hosted disseminated molybdenite. The Quartz Breccia zone consists of highly fragmented hornfelsed rocks interwoven by molybdenum-bearing quartz veins. Bard Ventures earned 100% interest on the adjoining **Grouse Mountain** polymetallic property (MINFILE 093L 026, 251), now included as part of the Lone Pine project.

The **Shan South** property (MINFILE 103I 114), owned by BCM Resources Corp, is located near Terrace. A 3366 m drill program was completed to further define the Las Margaritas deposit and explore for fault offset extensions of mineralization. Las Margaritas infill hole

LM-054 intersected 189 m grading 0.064% Mo from 18 m. Holes LM-048 and LM-049 collared directly east of Las Margaritas targeted the intrusive contact area. No significant mineralization was encountered despite hitting the targeted lithologic contact.

### **Nickel in ultramafic rocks**

**Turnagain** (MINFILE 104I 014) is a bulk tonnage nickel prospect in a zoned 3 by 8 km Alaskan-type ultramafic complex located 70 km east of Dease Lake. Owner Hard Creek Nickel Corporation released an updated preliminary economic assessment in December 2011 reporting decreased initial capital expenditure from \$2.9 to \$1.319 billion dollars. Capital reduction came as a result of improved metallurgical recovery methods and the ability to produce a saleable nickel concentrate without constructing a costly hydrometallurgical facility. Measured plus indicated resources total 556 Mt averaging 0.228% Ni and 0.014% Co. Inferred resources total 201 Mt averaging 0.235% Ni and 0.013% Co. Current resource estimates do not incorporate platinum or palladium values, although these elements occur on the property in significant amounts. Metallurgical tests on material gathered from the less explored Cliff zone produced concentrate grades up to 19.8 % Ni, 20.1 g/t Pt, and 22.4 g/t Pd from theoretical head grades of 0.35% Ni, 0.281 g/t Pt, and 0.332 g/t Pd. Further PGE related exploration is planned for 2012 (Figure 27).

First Point Minerals Corp owns four properties including **Letain** in the Skeena region, all located approximately 85 km east of Dease Lake. Their target is nickel-iron alloy (awaruite) mineralization in the Cache Creek terrane. Reconnaissance and detailed geological mapping and rock sampling were completed on all four properties following the 2009 discovery of awaruite on the Letain property. Assay results are pending.

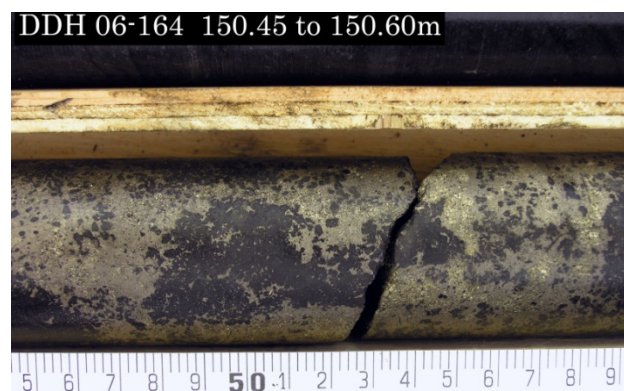


Figure 27. Magmatic pyrrhotite with interstitial pentlandite and PGE's in serpentinized wehrlite.

## 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 in rocks of early Triassic age and important deposits in the Stewart district are 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)

### *Atlin - Cassiar District*

The Silvertip high-grade silver manto prospect is owned by Silvercorp Metals Inc and is located approximately 85 km west of Watson Lake and 25 km south of the Alaska Highway. The Silvertip property reportedly contains three types of mineralization: contact, reef and exhalite. The most important type occurs at the contact between McDame Group limestone and overlying Earn Group black siltstone as sphalerite-galenapyrrhotite-pyrite massive sulphide bodies. Reef-style mineralization occurs in limestone. The exhalite-type mineralization occurs as chert-sulphide-barite beds in the Earn succession. After analyzing 10 913 m drilled in 36 holes completed in 2010, an updated resource estimate at a 200 g/t Ag equivalent cut-off calculates indicated resource totalling 4.2 Mt averaging 261 g/t Ag, 4.87% Pb, 8.5% Zn and 0.38 g/t Au. Additional inferred resources total 0.91 Mt averaging 278 g/t Ag, 4.80% Pb, 9.6% Zn and 0.23 g/t Au. A 5000 m drill program conducted in 2011 tested exhalite grades and satellite geophysical anomalies around the known deposit. Step-out exploration in the DM zone, 8 km to the south, targeted the same lithological contact hosting the Silvertip deposit. Drill results are pending. A February 2011 preliminary assessment proposes a 500 t/d seasonal operation with an estimated start-up capital of \$50 million.

### *Stewart - Iskut District*

Copper Creek Gold Corp explored the Bonsai prospect (MINFILE 104B 383) located 6 km southwest of the past producing Eskay Creek gold mine. Stratabound massive to framboidal pyrite at Bonsai is associated with Salmon River Formation rhyolite and mudstone; a similar stratigraphic position to gold-bearing zones at Eskay Creek. In March, Copper Creek together with Teuton Resources Ltd expanded mineral claims to the north. New claims cover known gossans and areas along strike from other known mineralization at Bonsai. A four hole program totalling 944 m completed in 2011 targeted

down-slope extensions of hole BZ03-08: a hole that was completed in 2003 and returned 64 m averaging 0.38 g/t Au, 27g/t Ag from 90 m. Results are pending.

Eskay Mining Corp earned 70% interest in the **SIB** property (MINFILE 104B 376) and has announced intentions to increase holdings to 80%. Joint venture partner St. Andrew Goldfields optioned SIB to Eskay in 2008. Eskay conducted a deep geophysical survey targeting inferred fault-displaced continuation of Eskay Creek-type stratiform gold-silver massive sulphides. SIB is located south of the past producing Eskay Creek gold mine.

Castle Resources Inc deployed five drill rigs to the past producing **Granduc** mine area (MINFILE 104B 021) for a 31 000 m program. A new resource estimate for the deposit released in February 2011 is based on historical data and 8300 m drilling completed in 2010. Using a 0.8% copper cut-off grade, indicated resources total 3.75 Mt averaging 1.59% Cu from the Main Zone. Additional inferred resources total 15.8 Mt averaging 1.36% Cu from the Main and North Zones. The 2011 surface drill program successfully identified mineralization 900 m down dip and 600 m to the south of the previously mined Main Ore zone. Drilling highlights from the sparsely explored and un-mined South zone include hole GD11-16 that cut 8 m averaging 3.17% Cu, 0.37 g/t Au, 7.50 g/t Ag and 11.98% Fe from 682 m. This year's drilling results will be compiled and applied to an updated resource estimate expected by the end of 2011. Refurbishing of the 17 km long Tide tunnel is nearing completion. The famous “11 mile tunnel” connects the Granduc mine to the mill site and to the 51 km all season road linking the deep sea terminal of Stewart. Underground drilling is scheduled for 2012. A preliminary economic assessment is scheduled to commence early 2012. Baseline environmental surveys have been initiated. Granduc is a volcanogenic massive sulphide with tabular ore zones deformed by at least three phases of folding. Massive sulphide assemblages consist of pyrite, pyrrhotite and chalcopyrite and occur near the contact between mafic pillow basalts and tuffs with overlying chert and argillite.

Pacific North West Capital Corp published a new resource estimate for the Black Dog deposit within its Rock and Roll (MINFILE 104B 377) property located approximately 9 km west of the Bronson airstrip and 37 km from Eskay Creek mine road. Updated indicated resources total 2.16 Mt averaging 0.68 g/t Au and 82.7 g/t Ag using a 0.5 g/t Au equivalent cut - off grade including 0.22% Cu, 0.22% Pb, and 0.94% Zn. Mineralization occurs in multiple stacked sulphide lenses in two zones: Black Dog and SRV. Triassic mudstone and andesite stratigraphy is similar to past-producing Eskay creek gold mine.

## ***Terrace – Smithers District***

The **Chist Creek** (MINFILE 103I 185) overlies a large volcanic alteration zone found by the British Columbia Geological Survey in 2007 and is located 15 km east of Lakelse Lake. Paget Minerals Corp discovered additional semi massive-sulphide lenses and stringers with associated quartz-sericite-pyrite alteration at the mafic-felsic contact of Paleozoic volcanics. Follow-up drilling totalling 750 m in four holes was completed in 2011. Results are not currently available.

Decade Resources Ltd pursued exploration on the **Wedene** property (MINFILE 103I 169) located northwest of Kitimat. Copper-gold mineralization encountered in 2010 drilling and geochemical surveys were followed-up with down hole and ground induced polarization surveys and MMI geochemical surveys. Results from 2010 drilling include 109 m averaging 0.48% Cu and 1.0 g/t Au in hole 2010-J-1.

The **Fireweed** (MINFILE 093M 151) property is located near Babine Lake and being worked by Shamrock Enterprises Ltd under an option agreement with Pachamama Resources Ltd. The second year of drilling commenced in December and planned for 1500 m. Targets included follow-up of 2010 highlight results and exploring the West Zone. Hole FW10-1 was drilled in 2010 in the Feeder zone and returned 28.79 m averaging 64.69 g/t Ag and 1.05 g/t Au. Results are pending. Fireweed hosts stratabound, massive and disseminated sulphide mineralization within Skeena Group sedimentary rocks. Mineralization occurs preferentially in grey sandstone interbeds within a thick sequence of black siltstone and shale.

## **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)

### ***Epithermal and orogenic veins in the Atlin District***

The historic **Engineer** gold mine (MINFILE 104M 014) located 32 km west of Atlin and explored by BCGold Corporation. Epithermal veins near the Llewellyn fault produced 559 863 grams (18,000 oz) of

gold in the 1920’s with average ore grading 39 g/t Au. An inferred mine resource released in April 2011 totals 14 000 tonnes averaging 52.5 g/t Au at a 25 g/t cut-off. Six bulk samples totalling 300 tonnes were mined and milled from the Engineer and Decker veins. Fine-grained gold was visible in the bulk sample and metallurgical testing is ongoing. Gold mineralization occurs primarily as electrum in association with roscoelite in discrete, vertical high-grade ore shoots. Secondary lower grade gold mineralization occurs in shear structures and hydrothermal breccias. More than 600 m were trenched on the Boulder, Shaft, Double Decker and Shear “B” zones, all of which were previously worked in the 1920s. Infrastructure upgrades include refurbishment of the 30 t/d gravity mill circuit, shaft area refurbishment and dewatering. Underground exploration drilling is planned for 2012. Prospecting and geological mapping were conducted with the assistance of a 600 km SkyTEM airborne geophysical survey. BCGold consolidated its land position around Engineer in 2010 by entering into an Option Agreement to acquire 100% interest in five mineral claims adjacent and partially surrounding the Engineer property

Blind Creek Resources Ltd drilled 17 holes totalling 3325 m at their **Wann River** polymetallic vein project (MINFILE 104M 026) located approximately 15 west of Atlin. Drilling followed up 2010 rock chip and mine dump grab samples that returned up to 263 g/t Au, 1350 g/t Ag, 2.75% Cu, 4.45% Pb and 1.36% Zn. Drilling highlights include hole WR-04-01-11 returning 1.0 m averaging 11.3 g/t Au and 94.8 g/t Ag. An 800 by 180 m area interpreted to be the hanging wall of the Llewellyn fault zone hosts the strongest mineralization and is analogous to the ore zone at the Engineer Mine.

Exploration on the Trapper Gold project was funded by Ocean Parks Ventures Corp as part of a joint venture with Constantine Metal Resources Ltd. The project area is located 45 km north of the Golden Bear mine road and 140 km south of Atlin. A 2 km gold-arsenic soil anomaly identified by previous workers and expanded in 2011, is coincident with pervasive alteration was drill tested with 42 holes totalling 8 500 m. A visible gold-bearing intercept reported in hole TG-11-011 returned 22.86 m grading 2.51 g/t Au including 0.41 m grading 92.8 g/t Au hosted in porphyritic diorite. Additional field programs completed in 2011 included geological mapping, geochemical sampling, and induced polarization and airborne electromagnetic surveys.

### ***Epithermal and Intrusion-related Veins in the Stewart District***

Ascot Resources Ltd drilled 36 318 m on the **Big Missouri** and **Dilworth** properties located approximately 25 km north of Stewart. The 150 hole program tested bulk tonnage and high-grade underground gold-silver vein targets. The Big Missouri zone (MINFILE 104B 092)



was drilled on 50 m centres in support of calculating an initial resource. Highlights include 0.81 m in hole PR-11-159 grading 841 g/t Au and 297 g/t Ag. Drilling was also completed in the Province (MINFILE 104B 147) and Unicorn (MINFILE 104B 044) areas following up lower grade gold intercepts. Early drill results from Unicorn returned 62.61 m from hole PR-11-158 grading 3.74 g/t Au and 4.4 g/t Ag. Several drill holes intersected visible gold and electrum.

Jayden Resources Inc (formerly Pinnacle Mines) completed 115 holes totalling 17 500 m on the **Silver Coin** property (also known as Silver Butte, MINFILE 104B 150), located 24 km northwest of Stewart and 5 km north of the former Premier mine. Best intercepts graded 2.86 g/t Au and 23.06 g/t Ag over 44.9 m in hole SC11-415. The Main Breccia zone hosts the strongest gold-silver mineralization and has been traced for over 2 km along strike with varying widths from 20 to 100 m. Vertical definition extends to 700 m. An updated resource estimate released in April 2011 reports a measured resource totalling 4.37 Mt grading 1.55 g/t Au, 6.53 g/t Ag and 0.26% Zn. Indicated resources total 19.76 Mt grading 0.98 g/t Au, 6.41 g/t Ag and 0.18% Zn. Additional inferred resources total 32.44 Mt averaging 0.78 g/t Au, 6.41 g/t Ag and 0.18 % Zn. A composite bulk sample was collected to test and refine metallurgical processes to optimize recoveries. A pre-feasibility study is anticipated for release early in 2012. Gold-silver-zinc-bearing epithermal veins and breccias are hosted in Hazleton volcanics and structurally controlled by faults.

Castle Resources Inc has an option to earn 100% interest over three years on the **Horseshoe** gold-silver property located 14 km southeast of Stewart. A 2000 m drill program tested High Grade (MINFILE 104A 011), Fraser and North Fork occurrences.

The **MB** property is owned by Mountain Boy Minerals Ltd and located about 22 km north of Stewart. The company planned to explore sections of both the High Grade and Mann veins occurring on their property with approximately 5000 m of drilling.

Mountain Boy Minerals Ltd acquired additional mineral claims surrounding its **Dunwell** property located 8 km north of Stewart. These claims cover the inferred structural extension of the past producing Dunwell silver-gold mine (MINFILE 103P 052). A 30 hole program tested potential depth and strike extension of previously mined high-grade veins. Mineralized zones ranging from 3-9 m wide were reported between 170 and 260 m below the original gold mine's lowest No. 4 level. Black pyritic shale hosts steeply west dipping, pyrite-galena-sphalerite-tetrahedrite veins with and local native silver and argentite.

Teuton Resources Corp conducted another bulk sampling program this year on the **Clone** property (MINFILE 103P 251), located 16 km west of Stewart. The sampling focused on the higher grade portion of the H-1 zone. Samples from each 1-tonne lot were analysed

and returned an average grade of 137.1 g/t Au for the total 102 tonnes. Ore will be shipped for processing upon completion of metallurgical testing.

The **Homestake Ridge** property (MINFILE 103P 216) is owned by Bravo Gold Corp and located 35 km southeast of Stewart. An updated resource estimate reported in May 2011 calculated an indicated resource totalling 888 Kt grading 6.69 g/t Au and 47.2 g/t Ag. Additional inferred resources total 4.06 Mt averaging 4.3 g/t Au and 158 g/t Ag. Cut-off grade is 3 g/t gold equivalent. Drilling totalled 7364 m in 23 holes targeting hanging-wall structures to the Homestake Silver zone and the connecting area to the Main Homestake zone. Drilling highlights include 14.2 m averaging 338 g/t Ag and 1.2g/t Au from hole 11HR-228. Other field programs included an induced polarization geophysical survey, channel sampling and geochemical soil sampling. Mineralization consists of quartz-calcite veins and breccias with associated sphalerite, galena, pyrite and chalcopyrite.

Frontline Gold Corp drilled 1170 m on the **Poly** project (MINFILE 104A 177), located just north of Stewart. Frontline acquired the adjacent Lord Nelson Tenures, thereby increasing their mineral holdings to the southeast. A VTEM geophysical survey identified several anomalies some of which are coincident with historical gold and base metal intercepts; these defined 2011 drill targets. Results are pending. Other exploration ground work included rock, stream sediment and MMI soil sampling. The area is underlain by Jurassic Hazleton Group volcanic rocks intruded by a small stock of Eocene quartz monzonite. Mineralization is hosted in brecciated epithermal to mesothermal quartz-sulphide veins.

### ***Intrusion-related Gold in the Skeena Arch***

Deer Horn Metals Inc (formerly Golden Odyssey Mining Inc) carried out a 55 hole 3773 m drilling program on its Deer Horn property (MINFILE 093E 019) located 36 km south of the Huckleberry mine. Vein-hosted tellurium-gold-silver mineralization is focused in two structures. Most of this year's drill holes were referenced around the historic Deer Horn adit with the intention of establishing a tellurium resource. Existing indicated plus inferred resource released in 2010, totals 31 000 tonnes averaging 5.905 g/t Au and 184.35 g/t Ag. Cutoff grade is 1 g/t Au. Forty-nine holes targeted the first 70 m of the near-surface gold-silver-tellurium zone. Drill hole DH-117 intercepted 8.69 g/t Au, 316.8 g/t Ag and >225 ppm Te over 12.80 m. An historical tungsten showing identified as scheelite in talus was followed up with six holes. Other field programs included bedrock mapping and sampling, 2000 m of trenching, high resolution aeromagnetic and radiometric surveys.

Callinex completed an 11 hole drill program totalling 4579 m on the Coles Creek property (MINFILE 093E 041) located 100 km south of Houston. Highlights

include 97 m grading 0.068 g/t Au, 36.9 g/t Ag, 0.580% Zn and 0.368% Pb in drill hole COLE 48. Mineralization is hosted in three zones; porphyritic granodiorite, fragmental volcanoclastics and the contact zone between them.

Jet Gold Corp completed 11 drill holes totalling 830 m on its Big Hammer gold-silver-tellurium property located approximately 13 km southeast of Terrace. Polymetallic quartz veins discovered in 2007 by provincial survey geologists prompted follow-up rock chip sampling and trenching. Average values from eight combined rock chip and channel samples with an average width of 1.35 m returned 6.03 g/t Au, 110 g/t Ag and 196.5 g/t Te. This year, seven drill holes spaced at 20 m tested the 380 Vein. Highlight results include 0.4 m averaging 13.3 g/t Au, 112 g/t Ag and 69 g/t Te. Quartz-sulphide-telluride veining intercepted in seven holes increased trend confidence and understanding of vein orientation. Additional drilling is planned for 2012.

Argonaut Exploration Inc initiated work on the Columario mine property (MINFILE 103I 077) located approximately 15 km east of Terrace. Drilling totalled 2601 m in 21 holes targeting vein-hosted polymetallic mineralization over a 1300 by 500 m area. The past producing mine area has never been systematically explored by drilling. Highlight drill results include 2.05 m averaging 8.55 g/t Au and 27.1 g/t Ag from 39.5 m including 0.2 m averaging 85.2 g/t Au and 272.0 g/t Ag from hole COL11-14. An extensive rock chip sampling program returned several results greater than 20 g/t Au and up to 72.4 g/t Au across a 0.3 m vein. Additional field programs included geologic mapping, mine road and underground refurbishment and environmental baseline studies. Argonaut plans to conduct underground exploration in 2012.

Yellow Giant gold project (MINFILE 103G 021) owned by Banks Island Gold Ltd, is located on the west coast of Banks Island, approximately 120 km south of Prince Rupert. An updated inferred resource reported in September sums three deposits (Tel, Bob and Discovery) totalling 115 Kt averaging 22.2 g/t Au and 73.3 g/t Ag, without applied cut-off. Drilling totalled 563 m in eight holes at the Tel Zone in 2011. Highlight intersection from hole BIG-11-07 averaged 18.8 g/t Au, 47.0 g/t Ag, 0.5% Pb and 1.3% Zn over 2.2 m representing an estimated 1.7 m true width. A preliminary economic assessment published in November plans for the sequential mining of the three separate mineral zones with a 200 t/d mining facility totalling 75 000 t/y. Forecast mine life is 25 months for all three deposits. Environmental baseline studies are ongoing in preparation for mine permitting in 2012. Yellow Giant mineralization occurs in steeply dipping, quartz-carbonate massive sulphide veins 0.5 m to 5.0 m wide associated with the Arseno and Hepler faults on immediately west of the Coast Plutonic Complex.

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