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EXPLORATION AND MINING IN BRITISH COLUMBIA 2013



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Regional Geologist Summaries
EXPLORATION AND MINING
in British Columbia 2013

EXPLORATION AND MINING IN THE SKEENA REGION, BRITISH COLUMBIA

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SUMMARY AND TRENDS

The Skeena Region experienced fair levels of mineral exploration and mining in 2013 (Map 1). Financial markets were not readily available to junior explorers resulting in tight budgets all around unless funding was achieved through private placement, line of credit or other methods of creative debt financing. Access to exploration capital through Initial Public Offerings and regular financing methods were severely constricted due to various global financial reasons. However, many junior explorers have shown their resilience by conserving cash, partnering with each other and major miners to execute high value – low cost projects to keep at least eighty-two projects active throughout the region. Total exploration expenditures were down by approximately 29.5% to \$201M (Fig. 1). Total metres drilled were also down approximately 30% to 249 420 m (Fig. 2). Mine development expenditure increased by 112% to \$282M. Hydro power plant and transmission line expenditures are estimated to be in excess of \$750M. These high levels of infrastructure development remain unprecedented for the region and confirm northwest BC remains a stable investment destination for responsible exploration and long term development.

2013 SIGNIFICANT EVENTS

1. Imperial Metals Red Chris Mine in full scale construction and on schedule to be commissioned by May 2014
2. Northwest Transmission Line and Iskut Extension construction continues aiming to meet the commissioning of Red Chris (Fig. 3)
3. Colorado Resources discovers alkalic copper-gold porphyry system at North ROK, ~ 15 km NW of Red Chris
 - Drill Hole NR13-001; 242 m grading 0.63% Cu and 0.63 g/t Au (Fig. 4)
4. Seabridge Gold confirms high grade copper-gold core zone at the Kerr deposit at their KSM project and submits Environmental Assessment application package to government
 - Best intercept: 640 m grading 0.85% Cu and 0.42 g/t Au (Fig. 5)
5. Pretium Resources discovers Cleopatra Vein and intercepts 69 intervals grading over 1000 g/t Au.
 - A feasibility study outlines probable reserves at 15.1 million tonnes grading 13.6 g/t Au and 11.0 g/t Ag from the Valley of the Kings deposit
 - A 10 000 tonne underground bulk sample returned 5865 ounces gold and 4950 ounces silver
6. Banks Island Gold starts underground bulk sampling at Yellow Giant

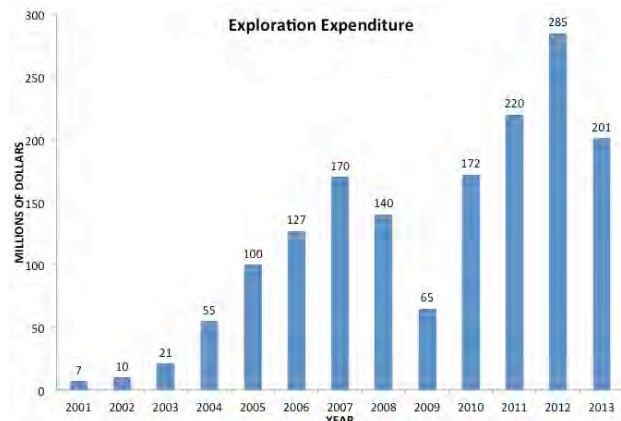


Figure 1. Estimated regional total exploration expenditures.

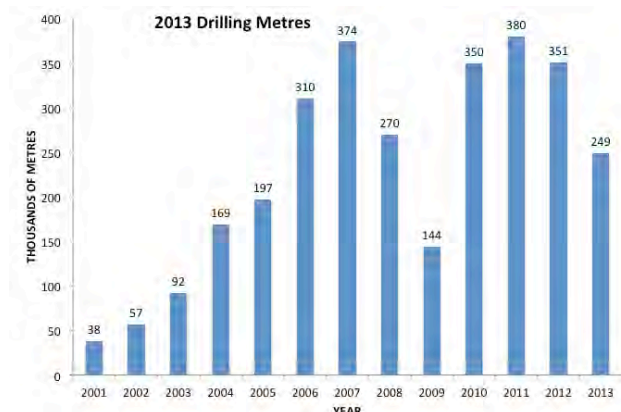
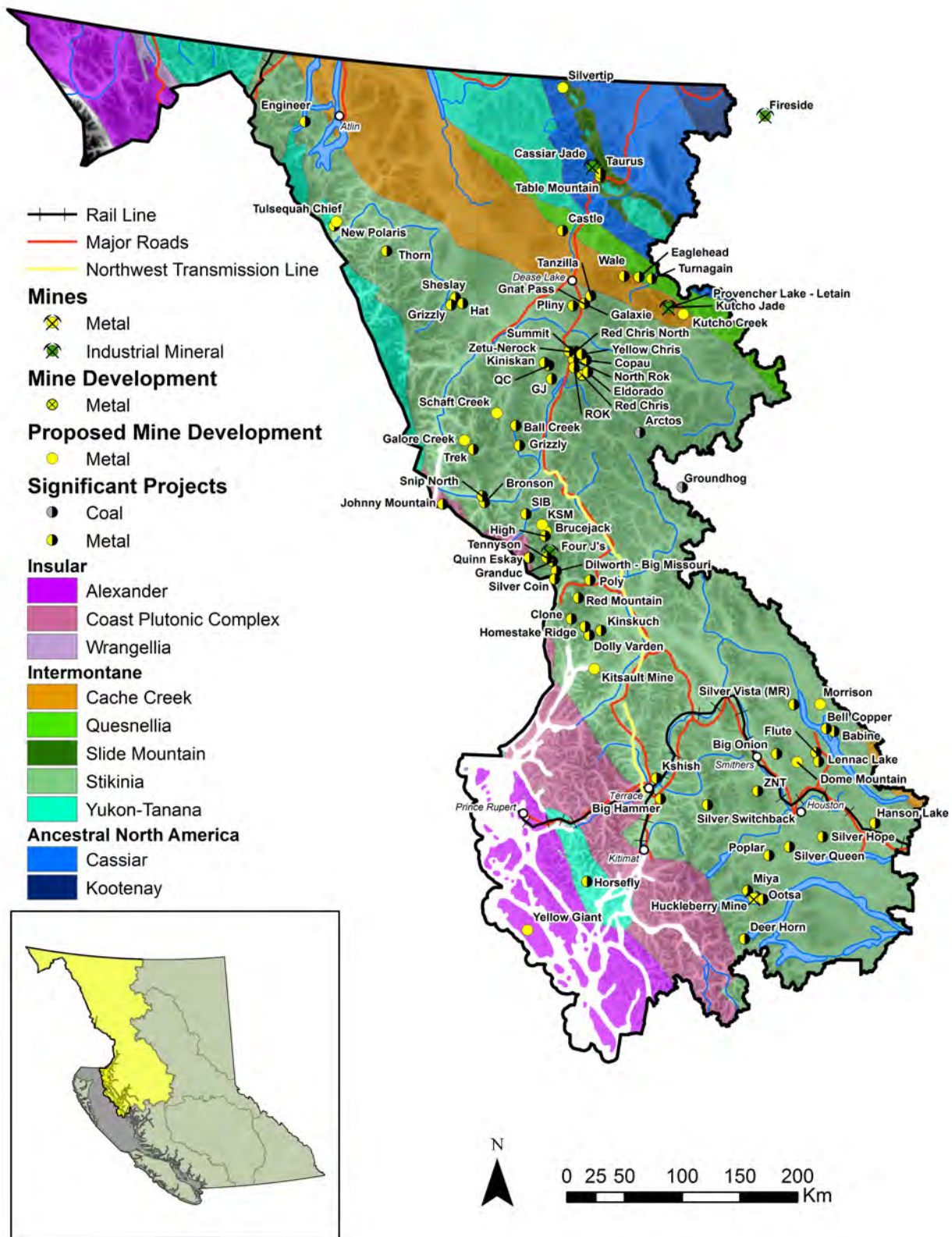


Figure 2. Estimated regional total exploration drilling metres.



Map 1. Active exploration and mining projects in the Skeena Region during 2013.



Figure 3. Newly constructed Northwest transmission line tower with recently hung insulators with folded Bowser Lake Group sediments in the background.

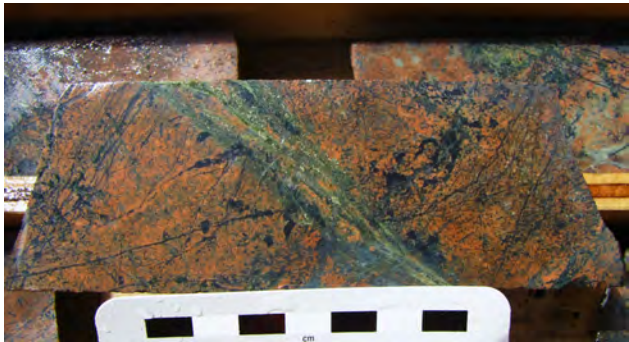


Figure 4. The first drillhole from Colorado Resources North ROK property, NR13-001, returned 242 m grading 0.63% Cu and 0.63 g/t Au in fine to medium grained, brecciated in part, strong, pervasive potassic altered monzonite with common disseminated, blebby, fracture fill and interstitial magnetite, pyrite and chalcopyrite.



Figure 5. Drilling at Deep Kerr successfully followed up a high-grade copper gold core zone. Hole K-13-29 692.4 m showing very strong pervasive silica replacement with abundant interstitial chalcopyrite and bornite. Photo Credit Mike Savell, Seabridge Gold.

7. Gold Reach Resources intercepted best grades to date at the Ootsa Project
 - East Seel Drillhole S13-155: 160.0 m @ 0.44% Cu and 0.53 g/t Au from 30 m depth
8. Copper Fox Releases Feasibility Study for Schaft Creek: 940.8 million tonnes Proven and Probable Reserve grading 0.27% Cu, 0.0176% Mo, 0.19 g/t Au and 1.72 g/t Ag
9. Teck Resources Ltd. Takes control of 75% of Schaft Creek project and re-ignites exploration
10. Chieftain Metals receives permits to begin road and mine construction at Tulsequah Chief
11. Avanti receives Environmental Assessment Certificate for their Kitsault molybdenum – silver mine
12. Agnico Eagle intercepts bonanza silver grades at newly discovered Slide zone at Homestake Ridge
13. Mining at Huckleberry continues as well as development of their Main Zone Optimization plan
14. High ranking anthracite coal projects in the Bowser basin are moving towards an Environmental Assessment application at Arctos and mine evaluation at Groundhog.
 - BC Government imposes a one year deferral on all new coal licences in the Klappan area, existing licences will not be affected
15. An unconformity has been identified that is at least spatially and temporally coincident with most significant metal mines in the northwest (Fig. 6)



Figure 6. Jurassic Hazleton Group grey-green, andesite block breccia unconformably overlying Triassic Stuhini Group maroon thinly laminated lithic lapilli ash tuff at the Horn showing (MINFILE 104G 035), Iskut region.

MINES AND QUARRIES

MAJOR METAL MINES

Huckleberry

The **Huckleberry** copper-gold-silver-molybdenum mine (MINFILE 93E 037) located 123 km southwest of Houston BC is operated by Huckleberry Mines Ltd. Ownership is divided between Imperial Metals Corp (50%), Mitsubishi Materials Corporation (32%), Dowa Mining Co. Ltd (6%), Furakawa Company Ltd. (6%) and Marubeni Corporation (6%). 2012 metal production totalled 15 926 tonnes copper, 80 kilograms gold, 5965 kilograms silver, and 2.0 tonnes molybdenum from 5 876 900 tonnes of ore mined from the Main Zone Extension pit (Table 1). Grades averaged 0.301% Cu and 0.007% Mo. Copper recovery was 90%. Non mining activities included construction of a new tailings storage facility (TMF-3), waste mining as part of the Main Zone Optimization project and near-mine exploration.

Construction of the Starter and Saddle dams required for TMF-3 were completed in August and are now operating to contain new tailings and potentially acid generating rock. New infrastructure required included new power, piping, pumping and cyclone facilities.

The Main Zone Optimization project continued to remove legacy tailings and waste rock from the former Main Zone Pit (Fig. 7). The MZO extends the mine life to 2021 with reserves totalling 39.7 Mt grading 0.343% Cu and 0.009% Mo at a 0.20% Cu cut-off grade.

Exploration activities were driven by 2012 drilling results and a comprehensive geophysical model which included data from historical magnetometer and IP surveys and 2011-2012 Titan-24 DC-IP/MT surveys. Drilling totalled 5242 m in 18 holes, assays are pending. In addition, a soil sample program was completed on the Huckleberry North claims.

Huckleberry is a copper porphyry deposit related to the late Cretaceous Bulkley intrusions. In the Main zone, 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



Figure 7. Active mining at the Main Zone Extension Pit in the foreground and excavation of the former Main Zone Pit at for the Main Zone Optimization project at the Huckleberry Mine.

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 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 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.

QUARRIES

Fireside

Fireside Minerals Ltd continued to mine barite from its summer-seasonal **Fireside** barite operation (MINFILE 94M 003) located 125 km east of Watson Lake. Barite production totalled 24 000 tonnes from 26 000 tonnes milled. Fine ground barite is bagged at a facility located at the mine site as well as in Watson Lake YT. Bags of powdered barite are sold on site to various consumers utilizing it as a heavy additive in drilling fluids in the oil and gas industry.

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

TABLE 1. MINE PRODUCTION AND RESERVES, NORTHWEST REGION

Mine	Operator	Production (2012)	Tonnes milled (2012)	Reserves	Grade
Huckleberry	Huckleberry Mines Ltd. (2012)	15 926 tonnes copper, 2.0 tonnes molybdenum, 80 kg gold, 5965 kg silver	5 876 900	49 907 500 tonnes @ 0.334% Cu, 0.009% Mo (December 31, 2012)	0.334% Cu, 0.009% Mo
Fireside	Fireside Minerals Ltd. (2013)	24 000 tonnes	26 000	95 400 (not NI 43-101 compliant)	

Jade

There has been significant increase interest in BC jade deposits largely from Asia. Nephrite jade mining occurred at seasonal operations in the Dease Lake area at least four quarries: Provencher Lake (MINFILE 104I 073, 092), Kutcho (MINFILE 104I 078), Cassiar (MINFILE 104P 005) and Dynasty (MINFILE 104J 057). Total production numbers for the gemstone are not available. Jade sales are by private arrangement and range from small, highly polished pendants to multi-tonne rough boulders (Fig. 8). Buyers of the raw boulders generally ship the stones off-shore for sculpting.

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

INDUSTRIAL QUARRIES

Industrial quarries in the Prince Rupert and Stewart areas provided material for major infrastructure upgrades at the Ridley Island terminal expansion (Fig. 9), the port of Stewart and the Canadian National Railway between

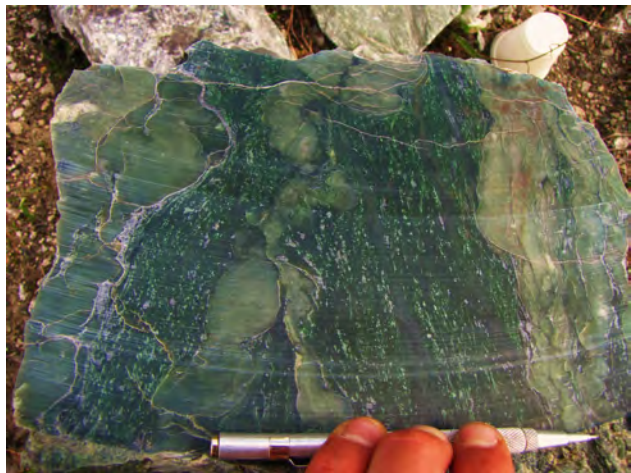


Figure 8. Nephrite jade boulder from the past producing Cassiar asbestos mine.



Figure 9. Ridley Island Coal terminal is expanding onsite storage capacity from 1.2 million tonnes to 2.5 million tonnes by 2014.

Terrace and Prince Rupert. The Ridley Island quarry produces amphibolite-grade metasediments to be used at the port expansion. The Tyee quarry (MINFILE 103I 202) produces epidote-bearing granite for dimension stone. The Kwinitsa quarry (MINFILE 103I 011) produces sillimanite-grade gneiss for CN rail-bed material and rip-rap stone used to protect Highway 16. At least one quarry in the Stewart area produced granitic material interpreted to be associated with construction activities at Stewart Bulk terminals.

MINE DEVELOPMENT AND EVALUATION PROJECTS

Red Chris

The Red Chris copper-gold mine (MINFILE 104H 005) located 80 km south of Dease Lake, has morphed from a defined deposit to a mine site (Fig. 10). Construction began May 2012 and peaked this summer with over 500 workers on site. Mine engineering is largely complete (> 94%) and several mine site buildings have been enclosed. Construction efforts will continue through the winter focusing on electrical and piping of the mill building, tailings system pipeline and the northern / Iskut extension of the Northwest Transmission line. A target date for commissioning of the mill is set for May 2014.

Significant milestones this year include completion of the main access road from highway 37, concrete and steel works of the main processing building, primary crusher building, truck shop, and overland conveyor. Work in the tailings impoundment area included dam construction, stripping and aggregate production. Total construction costs have risen 12.7% from previous estimates and now total \$500 M. Extra expenditures are a result of increasing the footprint of the process building to provide a more functional layout and include the concentrate thickener indoors. The increased size and geotechnical requirements increased concrete volumes by 70%. Other cost increases came from labor costs (30%) and the switch from Harmonized Sales Tax to Provincial Sales Tax. Cost savings were realized by clever use of



Figure 10. Mine construction at Imperial Metals Red Chris.

shipping containers for maintenance complex construction and efficient employment of used pit equipment.

The 93 km long Iskut extension power line connecting the mine site to the substation at Bob Quin is also in full scale construction. Ninety percent of the engineering design is complete and approximately 60% of the right of way and access roads have been cut. A 100 person camp and laydown area established along the route and will remain highly active through the winter to meet the commissioning goal of the mill. Imperial Metals formalized an agreement with BC Hydro whereby Imperial will finance and construct the Iskut extension and BC Hydro will buy the infrastructure back upon completion. The Iskut extension line will provide an estimated 600 jobs during construction and 300 full time jobs for the area.

Proven plus probable reserves remain at 301.549 Mt with an average grade of 0.359% Cu and 0.274 g/t Au. Measured plus indicated resources (inclusive of reserves) total 1218 Mt grading 0.327% Cu, 0.327 g/t Au and 1.114 g/t Ag using a 0.2% eCu cut-off grade. Additional inferred resources total 785 Mt grading 0.333% Cu, 0.347 g/t Au and 1.145 g/t Ag at a 0.2% eCu cut-off grade.

The Red Chris deposit comprises the adjoining Main, East and Saddle zones within a 204Ma monzodiorite stock. 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.

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

Northwest Transmission Line and hydro projects

Construction continues on the 344 km Northwest Transmission Line (NTL) that will provide 287 kilovolt service from Terrace to Bob Quinn Lake substation where the NTL will connect to the Iskut extension. Valard Construction and Burns & McDonnell are the prime contractors tasked with construction and have brought in a myriad of subcontractors to achieve construction timelines. Various factors including the cost of labour and materials have contributed to an approximate 33% cost increase from \$546M to an estimated \$746 M. Construction progress is visible from highway 37 and highway 16 where some of the 1100, 27 m tall

transmission towers can be seen (Fig. 11). Construction remains active into the winter months with at least 280 people directly employed. Several hydro power projects throughout the northwest are also under construction to feed into the NTL. Most recently commissioned is the 31 megawatt Long Lake Hydro project located 25 km north of Stewart jointly owned by Regional Power Corporation and Premier Power Corporation. Veresen Inc has secured the necessary contractors to complete the Dasque Middle run-of-river facility by mid 2014. The former primary sub-contractor went into receivership. Alta Gas Ltd is constructing three run-of river projects in the Iskut River area including the 195 MW Forrest-Kerr project (Fig. 12) scheduled to be completed by mid-2014. Other Alta Gas projects include McLymont Creek and Volcano and are under construction.

KSM (Kerr-Sulphurets-Mitchell-Iron Cap)

The Environmental assessment office officially accepted Seabridge Gold's application package for technical review on June 4th for the KSM project located 65 km north of Stewart. KSM consists of four defined



Figure 11. Northwest Transmission Line tower installation along Highway 37 near Bell 2.



Figure 12. Turbine installation at Alta Gas's Forrest Kerr run-of-river 195 MW hydroelectric power plant which will feed into the Northwest Transmission Line. Photo credit Lorne Kelly, Alta Gas.

deposits spread across approximately 10 km north-south strike-length. From south to north they are: Kerr, Sulphurets, Mitchell and Iron Cap. Combined, these form one of the largest undeveloped gold-copper porphyry resources in North America with proven plus probable reserves totalling 2164 Mt averaging 0.55 g/t Au, 0.21% Cu, 2.74 g/t Ag and 44.7 ppm Mo. Measured plus indicated resources (inclusive of reserves) total 2780 Mt grading 0.55 g/t Au, 0.21% Cu, 2.9 g/t Ag and 55 ppm Mo. Inferred resources total 1127 Mt grading 0.41 g/t Au, 0.17% Cu, 3.0 g/t Ag and 50 ppm Mo.

The KSM project is projected to operate over a 55 year mine life with an estimated capital cost of \$5.3 billion. The initial 25 years would be an open pit mining operation processing 130,000 t/d decreasing to 90,000 t/d for the remaining 30 years. Ore would be fed to a flotation mill and produce a gold-copper-silver concentrate and then trucked to the Stewart port facility. Metallurgical testing indicates a salable, clean 25% copper concentrate can be produced as well as a separate molybdenum concentrate and gold-silver doré.

Drilling in 2013 focussed on defining higher grade copper-gold mineralization at Deep Kerr and follow up targets at Iron Cap, McQuillan and camp zones totalling 32 274.25 m in 40 holes. Total drilling at Deep Kerr was 23 822.45 m in 29 holes (Fig. 13) of which 25 hit their target. Two were lost due to hole deviation while the other two were terminated due to weather and are available for re-entry. As most holes are over 1 kilometre in length, wedges and directional drilling technology helped achieve efficiency. Fifteen wedges were completed at Deep Kerr. Secondary holes deviated from a



Figure 13. Directional deep drilling at the KSM project Deep Kerr zone with Sulphurets zone in the background. Photo credit Mike Savell, Seabridge Gold.

primary “mother” hole to avoid re-drilling un-mineralized upper sections. Best intercepts are reported in Table 2.

TABLE 2. HIGHLIGHT DRILLING RESULTS FROM THE KSM PROJECT

Zone	Hole ID	From (m)	To (m)	Width (m)	Au (g/t)	Cu (%)	Ag (g/t)
Deep Kerr	K-13-23	1066.2	1362.4	296.2	0.4	0.73	1.15
	K-13-23B	953	1249.4	296.4	0.59	0.65	1.1
	K-13-23C	908.9	1224.4	315.5	0.45	0.65	1.2
	K-13-24	807	929.7	122.7	0.86	0.85	2.64
	K-13-24C	825	1053	228	0.96	0.72	2.6
	K-13-25	928	1171	242	0.26	0.61	2.28
	K-13-25C	1103	1278	175	0.39	0.62	1.5
	K-13-30	326	645.7	317.7	0.33	0.53	1
	K-13-31	519.2	624.4	105.2	0.66	1.11	2.2
	K-13-34	496	1136.5	640.5	0.42	0.85	1.9
Iron Cap	IC-13-048	346.5	839.8	493.3	0.3	0.3	3.2
	IC-13-049	9	1032.4	1023.4	0.77	0.24	5.15
Camp Zone	C-12-04	353	375.5	22.5	3.02		12
	C-12-06	358.5	376.5	18	3.15		7.7

obliterated by intense, pervasive silica-pyrite alteration. However, discrete windows of weaker alteration do allow some preservation of primary textures including porphyritic intrusives and screens of pebble conglomerate. The sediments identified within Iron Cap are interpreted to be part of the Lower Jurassic Jack Formation which was focus of a detailed study conducted this summer by the BC Geological Survey. Interpretations suggest certain iterations of the Jack Formation locate key structures hosting late Triassic – Early Jurassic porphyry systems; in the case of KSM, the Sulphurets fault.

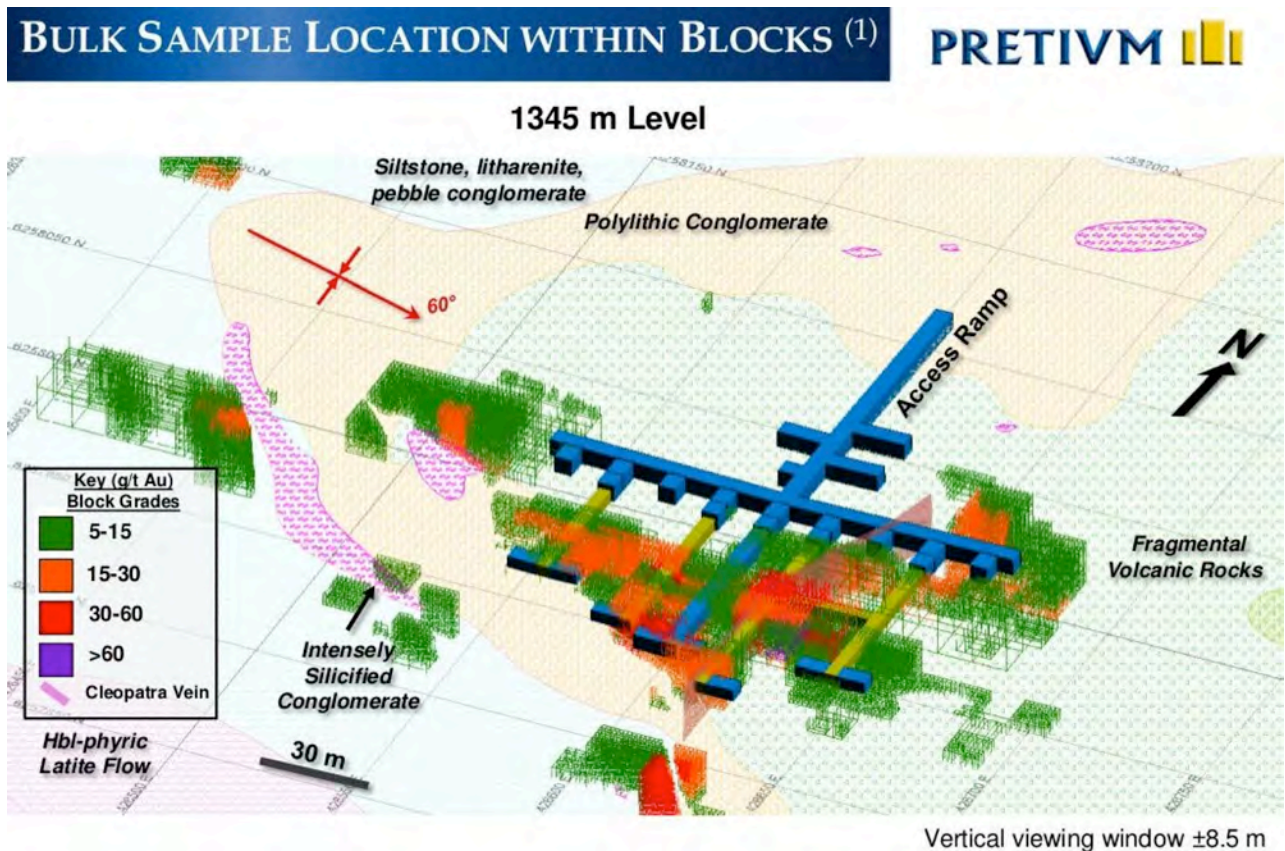
Brucejack

Pretium Resources Inc has completed another year of outstanding productivity and results at their high-grade gold Brucejack project 65 km north of Stewart and adjacent to the KSM project. The primary focus during 2013 was to further validate the deposit by completing a 10 000 tonne underground bulk sample from the **Valley of the Kings (VOK)**. Other major achievements included filing a positive feasibility study, significant advances in deposit geology, discovery of the Cleopatra vein, approximately 1.2 km of underground development,

completion of 44 601 metres of combined underground and surface drilling, and commissioning a 75 km site access road from highway 37.

Excavation of the underground bulk sample program was enabled via re-commissioning of workings at the **West Zone** (MINFILE 104B 345) and an additional 546 m of new ramp development to the 1345 level of the **VOK** zone. The 10 000 tonnes were excavated from four 5 x 5 m crosscuts averaging approximately 75 m long and one ~ 25 m long lateral drift (Fig. 15). The sample was designed to represent grades across the deposit, including areas outside the projected November 2012 resource block model. Target material ranged from 0 g/t Au to 60 g/t Au. Excavation was completed in roughly 100 tonne rounds, crushed on site, processed through a sample tower assembly and shipped to a custom mill in Montana.

In order to gain the most information from the bulk sample program, two sampling methods were employed: 1) sample gravity separated splits from the sample tower resulting in assaying 0.014% of the total mass, and 2) bulk accounting of the entire 10 000 tonnes by total gold from combined gravity and flotation concentrates and residual tailings. Results from each method were designed



(1) 10m x 10m x 10m Indicated blocks greater than 5 g/t AuEq shown from November 2012 Mineral Resource estimate

Figure 15. Brucejack Valley of the Kings zone 1345 m level, bulk sample map and relative resource block model and geology. Courtesy of Pretium Resources.

to be complimentary in order to deliver the most information about the deposit. However, upon initial bulk sample results, it became apparent that the two methods were generating significantly different values where the bulk accounting was achieving 94% more gold than the sample tower method predicted. It is possible that the reliance on gravity and the limited sampling of the exhaustive sample tower process may have played a role in separating some coarse gold and under appreciating discrete high grades thereby yielding a different prediction than the actual returns from complete milling. Preliminary bulk sample results have exceeded expectations of recovered gold totalling **5865 ounces gold (182 421.9 grams) from 10 302 dry tonnes averaging ~17.7 g/t Au** plus 4950 ounces silver (153 962 grams) averaging 14.9 g/t Ag. Final results will be reported upon completion of cleaning of processing equipment.

Due to the high variance in gold grades, standard estimation techniques cannot accurately estimate the deposit. The extreme gold grades (up to 41 582 g/t Au) and the majority of the metal are contained within less 5% of the data resulting in two mineralized populations: 1) pervasive background mineralization grading up to 5.0 g/t Au and 50 g/t Ag and 2) discrete, high-grade mineralization. Background mineralization is estimated using ordinary kriging into 10 x 10 x 10 m blocks and validates well against input data. Discrete high-grade mineralization is estimated using multiple indicator kriging to and used to populate small scale blocks which are then proportionally incorporated into larger parent blocks. The resulting estimation is therefore inclusive of extreme gold grades but limiting of their overall influence of the parent block grade estimation. For example, if a block had a probability of 5% high grade then the final block grade would combine 95% of the low grade estimate with 5% of the high grade estimate. The influence of the high-grade population is therefore greatly restricted.

Drilling was divided between the underground bulk sample program (16 789 m), underground exploration (22 041 m) and surface exploration (5771 m). Despite challenging geology, the number of 1000 g/t Au intercepts has risen with each year since 2009 with 69 intercepts in 2013. Thus, demonstrating increased deposit control and understanding. The VOK deposit is currently defined over 1200 m in east-west extent, 600 m in north-south extent and to 650 m depth. Final drilling and bulk sample results have been compiled into an updated resource estimate with measured plus indicated resources totalling 15.3 Mt grading 17.6 g/t Au and 14.3 g/t Ag using a 5.0 g/t Au Eq cut-off grade. Additional inferred resources total 5.9 Mt grading 25.6 g/t Au and 20.6 g/t Ag. A sensitivity resource estimate of the Cleopatra vein structure (not meant to replace or supersede the VOK resource estimate) totals 0.06 Mt grading 38.8 g/t Au and 23.2 g/t Ag. An updated feasibility study is expected in 2014 as well as filing application for an Environmental Assessment Certificate.

A feasibility study published in June 2013 details a 2700 t/d milling operation fed by underground transverse – long-hole open-stope and longitudinal hole open stope mining methods. Processing would employ conventional floatation and gravity circuits to produce a gold-silver concentrate and gold doré. Hydro power would be brought to site from the recently commissioned Long Lake Hydropower plant approximately 40 km to the southeast. Capital costs are estimated to be \$663.5 M. VOK zone probable reserves total 15.1 Mt averaging 13.6 g/t Au and 11 g/t Ag. Additional West zone proven plus probable reserves total 3.8 Mt averaging 5.8 g/t Au and 243 g/t Ag.

Brucejack sits on the eastern limb of the broad northerly trending McTagg anticlinorium; a regional scale, mid-Cretaceous structural culmination in the Western Skeena Fold Belt. Brucejack property stratigraphy comprises of Triassic Stuhini Group sediments and volcanics unconformably overlain by Jurassic Hazleton Group volcanics followed by Bowser Lake Group sediments. Property lithologies generally dip moderately and young to the east and are variably altered. Lithologies are cut on the west side of the property by a topographic lineament, the Brucejack Fault of uncertain displacement and with interpreted history of long-lived re-activation and possibly extensional origin. Alteration is dominated by pervasive strong to intense quartz-sericite-pyrite replacement up to several hundred metres wide and approximately 5 km strike length. Most of the five defined mineral resources (West Zone, Valley of the Kings, Bridge Zone, Gossan Hill and Shore Zone) are within the intensely altered zone and associated with vein-stockwork systems of varying intensity. Stockworks display good continuity and in rare cases range up to 10 m wide. High-grade zones (Fig. 16) are either on the margins or contained within a zone of bulk low-grade mineralization up to several grams per tonne gold. Bulk low-grade mineralization tends to be associated with disseminated anhedral pyrite.

Mineralization at the Brucejack property is hypothesized to represent a deformed transitional meso – epithermal stockwork in pervasively altered lower Hazleton Group rocks; likely associated with the high levels of the multi-phase Mitchell intrusions.

Tulsequah Chief

The **Tulsequah Chief** mine (MINFILE 104K 002) located 100 km south of Atlin, is fully permitted and Chieftain Metals Inc. is gearing up for construction in 2014. The lengthy process of acquiring the Mines Act Permit, Environmental Assessment Certificate and Special Use Permit and amendments for each, concluded in February. Funding sources are secured to support the \$450 M capital expenditure with an additional \$45 M reserve through off-take agreements.

After a thorough compilation and re-interpretation of historical data, several new VMS exploration targets have

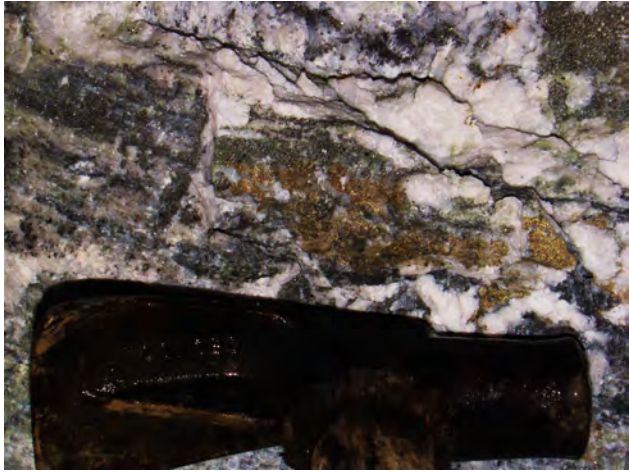


Figure 16. Slickensided coarse gold within sheared quartz vein stockwork at the Brucejack project Valley of the Kings zone, 1345 m level.

been identified in the Tulsequah district including extensions to known reserves. Targets were largely generated by indentifying 3D chargeability anomalies with similar characteristics and geometries as known mineralization. Drilling totalled 3540 m in 9 holes and successfully indentified massive sulphide poly-metallic mineralization 350 m northeast of existing Tulsequah reserves. Notable intercepts include 0.45 m grading 3.28% Cu, 10 g/t Ag and 0.223 g/t Au from 399.17 m in drillhole TC13064. Drillhole TC13062 targeted a strong chargeability anomaly approximately 50 m from the Tulsequah ore body and intercepted wide zones of massive sulphide with local high grade base metals and strong VMS alteration. Multiple high-grade intercepts confirmed stacked lenses typical in Kuroko type VMS systems. Highlight true width intercepts from drillhole TC13062 include 0.66 m grading 0.53 g/t Au, 9 g/t Ag, 2.51% Pb and 5.51% Zn from 89 m and 1.08 m grading 0.16 g/t Au, 14.6 g/t Ag and 12.99% Zn from 112.59 m and 1.05 m grading 1.61 g/t Au, 21.93 g/t Ag, 1.14% Cu, 0.96% Pb and 12.78% Zn. Other targets at past producing **Big Bull** (MINFILE 104K 008) and **Banker – Sparling** (MINFILE 104K 007) deposits have been identified and are scheduled to be followed up with drilling in 2014.

A feasibility study released in December 2012 outlines a 2000 t/d underground mining operation with a 9.5 year mine life. Mining would be conducted primarily by sub-level stoping with minor mechanized cut-and-fill stoping followed by paste and waste-rock backfill. Probable reserves total 6.45 Mt grading 2.30 g/t Au, 81.38 g/t Ag, 5.59% Zn, 1.12% Cu and 1.04% Pb. Processing will consist of a primary crushing plant, grinding and flotation plant, effluent treatment plant, and backfill plant. Production of copper, lead and zinc concentrates and gold doré would be achieved on site. Road and plant site construction is scheduled to commence in early 2014 aiming to start commissioning by Q2 of 2016.

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.

Kitsault

On March 20th, Avanti Mining Inc. received an Environment Assessment Certificate (EAC) for its **Kitsault** molybdenum-silver mine (MINFILE 103P 120) located approximately 115 km NNW of Terrace. After a thorough review, the Ministers of Environment and Energy, Mines and Natural Gas concluded that the project “is not expected to result in any significant adverse effects based on the mitigation measures and conditions in the EAC”. However, the Nisga’a First Nation has filed a Federal Court application challenging the decision citing the “Crown breached its obligation to evaluate the environmental impacts of the decision and consult with the Nisga’a Nation”. A federal environmental assessment decision is pending.

Activities during 2013 focussed on securing debt financing for construction, corporate re-organization and optimization of a feasibility study initially released in February. The optimized feasibility study released in November details a \$126 M reduction of capital expenditure from \$938 M to \$812 M for a 45,500 t/d milling operation over a proposed 14 year mine life. Open pit, conventional truck and shovel mining methods would be employed followed by conventional floatation and five-stage cleaning to produce a molybdenum - silver concentrate. Molybdenum recoveries are forecasted to be approximately 89% and 39% for silver. Proven plus probable reserves total 226.3 Mt averaging 0.083% Mo and 5.3 g/t Ag.

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

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 within the Lime Creek Intrusive Complex. Mineralization is hosted within multiphase diorite, quartz monzonite and younger felsic units. Cross-cutting relationships indicate multiple mineralizing events occurred. Geometry of mineralization appears to be annular in plan and arcuate in section.

Schaft Creek

Teck has opted back into the **Schaft Creek** copper-gold-silver-molybdenum project (MINFILE 104G 015) with Copper Fox Metals to form the Schaft Creek Joint Venture. Teck now owns 75% and is operator of the

project while Copper Fox retains a 25% interest. The joint venture was made effective from July 15th and shortly thereafter, crews and four drill rigs mobilized to the property (Fig. 17) located approximately 60 km south of Telegraph Creek. Drilling focused on testing eastern extensions of mineralization at the Paramount Zone and geotechnical studies of the proposed pit wall. Results are being compiled and a work plan for 2014 is under review.

Prior to the joint venture partnership, Copper Fox completed a feasibility study in late 2012. The study details road access and infrastructure linked from the project to the Galore Creek mine road at kilometre 65. An open pit, truck and shovel mine and 130 000 t/d milling operation for a 21 year mine life would produce separate copper-gold silver and molybdenum concentrates using conventional grinding and flotation circuits. Estimated initial capital expenditure totals \$3.256 billion. However, a request for information requirements (the initial step for an environmental assessment) has not been submitted. Proven and probable reserves total 940.8 Mt grading 0.27% Cu, 0.0176% Mo, 0.19 g/t Au and 1.72 g/t Ag.

Galore Creek

The **Galore Creek** alkalic copper – gold porphyry project (MINFILE 104G 090), owned equally by Teck and Nova Gold, is located approximately 150 km northwest of Stewart and operated by the Galore Creek Mining Corporation. Drilling in 2012 totalled 27 900 metres and confirmed the presence of significant copper mineralisation adjacent to the defined Central Pit. Highlight intervals included 1.3% Cu, 0.46 g/t Au and 6.0 g/t Ag over 86 m returned from GC12-0849 and 229 m grading 0.84% Cu, 0.15 g/t Au and 7.2 Ag from GC 12-886. 2013 drilling (Fig. 18) defined the new Legacy zone for 700 metres along strike and remains open in all directions. Drilling totaled 11 600 m. Plans to include the Legacy zone into future mine design are under way alongside an updated resource and reserve estimate and ultimately an updated feasibility study. Baseline monitoring and project engineering continue to develop an envisioned 80 000 tpd conventional milling operation



Figure 17. The Schaft Creek camp (foreground) and resource areas (background) prior to 2013 drilling activities.

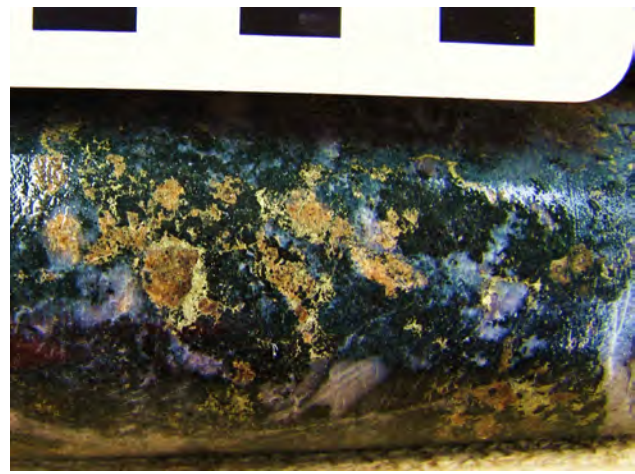


Figure 18. Chalcopyrite rimming garnets at Galore Creek Legacy zone.

for an 18 year mine life. Current proven plus probable reserves total 528 Mt averaging 00.59% Cu, 0.32g/t Au and 6.02 g/t Ag.

Morrison

Following refusal of an Environmental Assessment Certificate for the proposed **Morrison** copper –gold project (MINFILE 93M 007), Pacific Booker Minerals Inc. has successfully challenged the decision in the Supreme Court of British Columbia. The case made by the company is that despite an overall supportive report written by the Environmental Assessment Office, the decision was not in favor of the project due to a “risk versus benefit” test introduced after the assessment report was completed. The test was not included in the Terms of Reference established for the assessment process and therefore “failed to comport with requirements of procedural fairness (Justice Kenneth Affleck, Q.C.)”, resulting in a ruling in favor of Pacific Booker and effectively “quashing” the former Minister’s decision. An order has been given that the application be remitted to the current Minister for reconsideration and Pacific Booker and be provided with a copy of the recommendations sent to Ministers and opportunity to respond to prior to a decision.

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.

Kutcho Creek

Capstone Mining Corporation has ceased most activities at their **Kutcho Creek** copper-zinc project (MINFILE 104I 060) located 100 km east of Dease Lake. Modest care and maintenance and baseline monitoring continued at the project during the first half of 2013 while company focus was largely aimed at internal

reorganization and acquisition of the producing Pinto Valley copper-molybdenum mine in Arizona.

Probable mineral reserves total 10.44 Mt of averaging 2.01% Cu, 3.19% Zn, 34.61 g/t Ag and 0.37 g/t Au. Measured and indicated resources total 11.28 Mt averaging 2.19% Cu, 3.28 % Zn, 36.7 g/t Ag and 0.39 g/t Au. Additional inferred resources total 1.09 Mt averaging 1.74% Cu, 2.04% Zn, 30.7 g/t Ag and 0.35g/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.

The Kutcho property contains three known Kuroko-type volcanogenic massive sulphide (VMS) deposits. These are aligned in a westerly plunging linear trend and from east to west they are referred to as the Main, Sumac, and Esso deposits. The largest of the three, the Main deposit, is exposed near the eastern end of this trend, whereas the Esso deposit occurs at depths about 400-600 metres below surface at the western or down plunge end of the trend. 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.

Granduc

Castle Resources Inc. released a preliminary economic assessment in February for their **Granduc** copper-gold-silver massive sulphide deposit (MINFILE 104B 021) located 35 km north of Stewart. The PEA outlines an 8500 t/d underground mine over a 15 year mine life. Initial capital expenditure is estimated to be \$494 million. Proposed drill testing of strong, extensive (1.5 and 2 km strike length) conductive zones were not carried out due to lack of exploration funding.

At 0.8% CuEq cut-off grade of the combined Main and North Zones Measured plus indicated resources total 11.32 Mt grading 1.47% Cu, 0.17 g/t Au and 12.4 g/t Ag. Additional inferred resources total 44.63 Mt grading 1.43% Cu, 0.19 g /t Au and 10.7 g/t Ag. The Main Zone contains measured resources totalling 5.16 Mt averaging 1.58% Cu and an indicated resource of 2.95 Mt grading 1.39% Cu. Main Zone inferred resources total 30.52 Mt grading 1.40% Cu. The North Zone inferred resource is 14.11 Mt grading 1.49% Cu.

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

Dome Mountain

Metal Mountain Resources Inc., wholly owned subsidiary Gavin Mines Inc., continued preparation of a Mines Act permit amendment for the **Dome Mountain** gold mine (MINFILE 93L 276) located approximately 38 km east of Smithers. They anticipate delivery of the amendment application package to government by the end of the year. When accepted, it would allow a 250 t/d onsite mill and thickened tailings storage facility to be constructed. Underground development has completed 75% of necessary workings to achieve full scale production and will resume approximately two months before completion of the onsite mill.

Dome Mountain comprises of at least eight gold-bearing orogenic quartz veins within volcanic and sedimentary rocks of the Hazelton Group. The Boulder quartz-sulphide vein is fault hosted and shows evidence of shearing itself. 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.

Yellow Giant

Banks Island Gold Corp maintained 100% ownership of the Yellow Giant gold project (MINFILE 103G 021) located approximately 120 km south of Prince Rupert. Significant exploration and development have been ongoing during 2013 including commissioning of a dense media separation plant. Banks Island purchased their own company drill rig and have completed 18,250 m of diamond drilling in 93 holes on multiple structural targets across the property. The company has staffed up an eighteen person floating camp to conduct all aspects of exploration and development and limiting contractor dependence. New road construction totalled 6.8 km and linked together the five known prospects: Bob, Tel, Discovery, Englishman and Kim. Four portal sites have been prepared (Fig. 19) with the Bob portal development underway and approximately 100 m completed in preparation for an underground bulk sample. New prospective structural zones have also been identified.

Definition drilling at the Kim and Bob zones increased mineralized trends both along strike and below previously reported resource domains. Highlight results include KIM 13-07; 5.1 m grading 15.5 g/t Au from 47.3 m depth and KIM 13-05; 12.7 m grading 9.8 g/t Au from 78.3 m depth. Additional exploration drilling at Discovery and Englishman zones also identified significant gold-silver mineralization including: DIS-13-33; 14.4 m grading 3.7 g/t Au and 7 g/t Ag and DIS-13-23; 2.9 m grading 13.4 g/t Au and 21 g/t Ag.

Activities will continue throughout the winter months with continued exploration drilling and underground development at the Bob Zone. The company is aiming to process bulk sample material from the Bob zone with the dense media separation plant constructed onsite and commissioned using stock pile material from historic



Figure 19. Mines inspectors and project geologist discuss the proposed portal site at Banks Island Gold Corp's Yellow Giant gold project, Tel zone.

mining at the Bob zone in 1986. An offtake agreement has been established with Metallica Commodities Corp. who are expecting shipment of sulphide concentrate to commence by year end. Metallurgical tests on composite samples from the Bob, Tel and Discovery zones returned 90% average gold recovery from an average 109 g/t Au concentrate.

Mineralization occurs as quartz-carbonate bearing pyrite-pyrrhotite massive sulphide veins with minor amounts of interstitial native gold, sphalerite and galena. Higher grade shoot geometry measures up to 50 m apparent strike length and over 150 m deep. Veins are controlled by steeply dipping first and second order shear structures and range from 0.5 to 5.0 m wide. Known mineralization is closely associated with the Arseno and Hepler regional faults which separate Ordovician to Triassic metasediments from mid-late Jurassic intrusives.

MINERAL EXPLORATION

PORPHYRY COPPER PROJECTS

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

rich and intermediate composition, typically monzonites and their volcanic equivalent. Potassium feldspar porphyritic rocks are common. Alkalic rocks, syenite and pseudoleucite-bearing trachyte characteristic of the Galore Creek deposit represent an end-member composition. Some porphyry deposits in the Stikine district have an extremely high gold to copper ratio and are referred to as gold-copper porphyries. This includes the porphyries at KSM and Bronson Slope deposits (Table 11 at end of paper).

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 calkline intrusions. The three suites have separate distribution patterns but all occur within the transverse geologic feature known as the Skeena Arch. The Huckleberry deposit is related to a Bulkley intrusion.” (Revised from Wojdak, 2010).

Porphyry Copper-Gold Projects in Stikine Terrane, Iskut District

As production at Red Chris and the promise of hydroelectric power to the region move closer to reality, exploration for similar gold-rich high potassic, calc-alkaline porphyries also continues. The understanding of these atypical porphyry systems has evolved substantially with the published data from Red Chris and the prospect of higher copper-gold grades at depth, especially at known showings that were previously explored only to shallow depths.

Colorado Resources Ltd kicked off the exploration season with extraordinary results from the first drillhole into the **North ROK** property located approximately 70 km south of Dease Lake. Colorado workers followed up the **Mabon** (MINFILE 104H 035) showing initially identified in 1994 during a BC Geological Survey regional mapping program by an anomalous rock chip sample returning 0.33% Cu and 0.42 g/t Au. The low lying outcrop (Fig. 20) is within 1 km of highway 37 and less than 20 m vertically above the highest glacial terrace. At first glance, the outcrop doesn't appear economically significant. However, the strong, pervasive potassic alteration and fine disseminated magnetite with interstitial chalcopyrite recognized by Colorado workers focussed initial geochemical and geophysical surveys in 2012 and drilling in April 2013. Drillhole NR13-001 returned top – to-bottom copper-gold mineralization (2.0 - 333 m) averaging 0.51% Cu and 0.67 g/t Au. The top 242 m averaged 0.63% Cu and 0.85 g/t Au. Additional highlight intercepts are summarized in Table 3. Various exploration activities followed including geological mapping, soil sampling, airborne and ground geophysics and three phases of drilling were completed during the 2013 season. Drilling totalled 11 448 m in 29 holes. To date, deposit dimensions measure approximately 900 m strike length



Figure 20. The Mabon showing (MINFILE 104H 035) was initially sampled by Chris Ash during a BC Geological Survey.

and 200 m wide and remain open to the southeast and at depth. Several proximal exploration targets remain to be drill tested including an undercover chargeability anomaly of slightly longer strike length and similar orientation located approximately 500 m southwest of known mineralization.

Colorado Resources and joint venture partner Sunrise Resources also completed 1431 m in five drillholes at the **Eldorado** (MINFILE 104H 026) property approximately 10 km northeast of Red Chris. Drilling targeted magnetic – chargeability anomalies coincident with copper-gold soil anomalies previously tested by shallow drilling by Esso Minerals in 1980. Thick accumulations of glacial overburden and post mineral sediments hampered drilling efforts and resulted in two holes not achieving their target. Two of the completed 3 holes successfully identified chalcopyrite bearing potassic altered monzonite similar to Red Chris style mineralization at the overburden – bedrock interface. Drillhole EL13-004 returned the most significant intercept: 71.3 m grading 0.14% Cu and 0.33 g/t Au from 52 m depth.

To the south towards Red Chris and adjacent to North ROK, Oz minerals optioned the **ROK – Coyote** property (MINFILE 104H 001 and 104H 012) from

Firesteel Resources and completed the first phase of a two year commitment. Oz minerals agreed to spend \$3M on exploration over two years at which time they will earn 51% ownership. Phase one drilling totalled 1750 m in three holes. Airborne magnetic and radiometric geophysical surveys as well as ground based 3D IP were also completed to generate phase two drill targets.

Pistol Bay Mining optioned the **Summit B** property (MINFILE 104H 015) to Revolver Resources who are seeking to earn a 60% project interest located immediately north of North ROK. Initial 2013 ground work validated historical rock chip samples while later work completed 22.5 line km of IP geophysical survey and identified a northwest trending, strong (> 35mV/V) chargeability anomaly measuring 2.3 x 0.5 km. A winter program is underway targeting the anomaly with 1000 m of drilling. Pistol Bay Minerals also completed minor groundwork programs on their **Summit A** and **D** properties. Serengeti Resources also completed geochemical soil and silt sampling on their northern adjacent **Red Chris North (RCN)** property.

Freeport MacMoRan partnered with West Cirque Resources to fund exploration at **Castle** (MINFILE 104G 076), **Tanzilla** (MINFILE 104I 023) and **Pliny** (MINFILE 104I 026). Drilling efforts focussed at Castle totalled 1859 m in four holes, mainly targeting coincident magnetic and chargeability anomalies. Drilling intercepted magnetite-rich, potassic altered monzodiorite with quartz-magnetite-chalcopyrite veining that returned elevated copper-gold grades over wide intervals. Highlight results include: 274 m averaging 0.28 g/t Au, 0.10% Cu and 0.7 g/t Ag from 14 m depth in drillhole CA 13. Drillhole CA 13-03 targeted a low magnetic anomaly coincident with a chargeability high and intercepted strong phyllic alteration and high copper-gold silver values: 4 m grading 2.14% Cu, 4.88 g/t Au and 73.2 g/t Ag from 154 m depth as well as 32 m grading 0.13% Cu, 1.28 g/t Au and 2.2 g/t Ag from 308 m depth. Additional geochemistry at Castle East identified porphyry style alteration and anomalous copper-gold values over 600 m strike length but otherwise the zone remains untested. Groundwork at Tanzilla included structural and alteration geological

TABLE 3. HIGHLIGHT 2013 DRILLING INTERCEPTS AT COLORADO RESOURCES NORTH ROK PROJECT

Hole ID	From (m)	To (m)	Width (m)	Cu (%)	Au (g/t)
NR13-001	2	335	333	0.51	0.67
including	2	244	242	0.63	0.85
NR13-003	43.2	95.2	52	0.31	1.04
NR13-004	158.8	364	205.2	0.4	0.5
NR13-028	4	135.2	131.2	0.39	0.56

mapping and 4.4 line km of IP geophysical surveying. Complimentary to alteration mapping, 175 rock samples (Fig. 21) were analyzed using a Terraspec mineral identifier to differentiate clay minerals and delineate prospective assemblages in the litho cap known as Silica Ridge. Advanced argillic assemblages including quartz, pyrophyllite, diaspore, alunite, kaolinite, dickite, topaz, and dumortierite were confirmed from Silica Ridge extending 3 km southeast to the Gopher zone. Phyllic assemblages and possibly gusano textures indicative of proximal porphyry systems were also identified. Drill targets at Tanzilla may be tested in 2014 as part of the three year funding agreement with Freeport. Groundwork at Pliny included soil sampling, geological mapping and rock sampling. Two sizable copper in soil anomalies were identified measuring 250 x 480 m and 1100 x 300 m.

Victory Ventures completed a single drillhole at their **Copau** property (MINFILE 104H 036) located 11 km northwest of Red Chris. The 472 m hole targeted a strong chargeability anomaly but did not return any significant intercepts. A thick interval of graphitic mudstone was likely the source of the chargeability anomaly.

Teuton Resources conducted geochemical sampling and geological mapping at their **Yellow Chris** property and are currently seeking joint venture partners for several claim blocks containing intriguing magnetic anomalies. Redhill Resources has an opportunity to earn 60% of one such claim block and completed soil sampling, prospecting and geological mapping this year.

To the west of Kinaskan Lake, Teck Resources completed drilling, geophysics and geological mapping at **GJ** (MINFILE 104G 034) on track to earn 75% of the property optioned from NGE Resources. Crews investigated beyond the well defined Donnely zone and ventured out to **QC**, (MINFILE 104G 033), **Wolf** (MINFILE 104G 045) and **Seestor** (MINFILE 104G 170). Other companies active in the plateau included New Chris Minerals Ltd, and Colorado Resources.

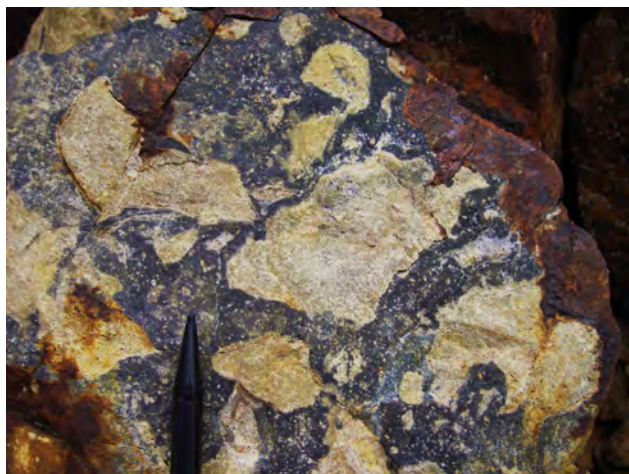


Figure 21. Hydrothermal breccia: white-cream, fine grained, strongly altered clasts appearing to be partially digested in silica-pyrite matrix at West Cirque Resources Tanzilla prospect. Photo Credit John Bradford, West Cirque Resources.

Further west, Prosper Gold Corp reignited exploration at the **Sheslay** project (MINFILE 104J 005) formerly known as **Copper Creek**, located approximately 105 km west-southwest of Dease Lake. Prosper optioned the property from Firesteel Resources and can earn up to 80% ownership by spending \$5M on exploration over four years. Firesteel was last active on the property in 2007 where 19 of 23 drillholes ended in mineralization. Activities this year included 2339.74 m of drilling in six holes, airborne magnetic and radiometric geophysical surveys, a ground based IP survey and geochemical soil sampling. Drilling validated known copper-gold porphyry mineralization at the **Star** zone (MINFILE 104J 035) and identified the deepest mineralization encountered to date below 500 m depth in drillhole S027. Highlight results are summarized in Table 4 and display the uniform grades. Mineralization consists of disseminated and fracture fill chalcopyrite and quartz-pyrite-chalcopyrite veins hosted in variably altered Stuhini Group andesite and related volcano-sedimentary rocks. Four additional prospective zones scheduled to be drill tested in 2014 include Star North, Star East, Copper Creek and Pyrrhotite Creek. Adjacent claim holder Garibaldi Resources also carried out airborne magnetic and radiometric geophysical surveys on their **Grizzly** project (MINFILE 104J 004) located immediately west of the Sheslay project and east of the inactive Golden Bear mine access road. Two prospective faults have been identified and are interpreted to be related known mineralization at Sheslay. Further ground reconnaissance and sampling are planned for 2014. Doubleview Capital Corp also conducted 2581.3 m of exploration drilling in 11 holes at the **Hat** prospect (MINFILE 104J 021) as well as 15 line km of IP geophysical surveys. Drilling targeted chargeability anomalies coincident with elevated copper values in soil. Highlight results from phase one drilling returned 110.1 m grading 0.21% Cu and 0.015 g/t Au. Phase two drill results are pending.

Late 2012 work by HDI Amarc and HDI Quartz Mountain Resources on the **Galaxie** project defined new porphyry targets and tested the historical **Gnat Pass** Cu-Au porphyry system. A comprehensive suite of geophysics (IP and magnetics), geochemical and geological surveys were compiled in early 2013 to identify 6 prospects including Hu, Pallen North, Pallen South, Silver Lode, Hotai and Nup. Ground work at Galxie included geological mapping, 10 line km of IP geophysical surveying, 96 rock chip samples and 246 soil samples. No immediate drill targets were identified however a series of alkali intrusions were observed around the Hu target and may warrant further exploration. Drilling at Gnat Pass totalled 1164 m in two holes designed to test and expand historic mineralization. Highlight results include 149 m grading 0.28% Cu from 95 m in drillhole GT12001 and 91 m grading 0.37% Cu in drillhole GT12002. Historic Gnat Pass resources are estimated to be 30 Mt grading 0.39% Cu. Mineralization remains open to the northwest and west, however faulting

complicates the deposit. Operatorship of both the Galaxie and Gnat Pass projects will pass back to Quartz Mountain.

Romios Gold Resources continued to explore their **Newmont Lake** and **Trek** properties comprising approximately 70 000 hectares located between the past producing Eskay Creek gold mine and the proposed Galore Creek copper-gold deposit. Limited ground work included the discovery of a new zone measuring 300 x 225 m of porphyry-related copper-gold mineralization now named **Burgundy Ridge** (Fig. 22). Mineralization consists of porphyry hosted chalcopyrite and bornite. Systematic hand sampling at 15 to 30 m spacing across the Burgundy zone averaged 0.47% Cu, 0.27g/t Au and 3.77 g/t Ag from 100 samples. High grade results returned up to 26.6% Cu, 1.48 g/t Au and 128 g/t Ag.

Porphyry Copper-Molybdenum-Gold Projects in the Skeena Arch

Gold Reach Resources Ltd have found the best copper-gold grades to date at their wholly owned Ootsa project located 6 km southeast of the producing Huckleberry mine. The Ootsa project consists of multiple



Figure 22. Romios Gold discovered the gold bearing Burgundy zone where record snow melts have allowed unprecedented exposures.

deposits including Ox, East and West Seel and several exploration targets. Early in 2013, an updated resource estimate incorporating 2012 drilling dramatically increased tonnages at both Ox and Seel deposits summarized in Table 5. Exploration activities during 2013 focussed on finding higher grades and increasing known resources. Drilling totalled 36 165 m of in 147 holes, 60 line km of IP geophysics and 1330 soil samples. Drilling confirmed shallow higher grade zones at Ox and East Seel deposits which will be incorporated into an updated resource estimate by early 2014. Highlight drilling intercepts are summarized in Table 6. Preliminary metallurgical testing of material from the Seel deposit yielded excellent recoveries of copper, molybdenum and gold from a conventional rougher flotation circuit. All values were above 90% and were not affected by any significant complexities or deleterious elements. Additional preliminary engineering work, environmental baseline studies and archeological assessment work was also completed. Tasks to be completed over the winter months include a preliminary economic assessment and further metallurgical work.

New Nadina Explorations Limited funded by Intrepid Mines Limited, completed a six drillhole program at the **Itsit** porphyry project (**Silver Queen** MINFILE 93L 002) located 43 km south of Houston. Drilling totalled 4413.3 m targeting TITAN IP geophysical anomalies and returned significant gold values. Highlight results include 144 m grading 0.379 g/t Au, 0.279% Cu and 0.041% Mo from 306 m depth in hole 12S-05. In an access dispute the Surface Rights board recently ruled in favor of New Nadina stating not all of the ground was being actively cultivated and mineral exploration was allowed to continue but is restricted to winter in areas of concern. Several chargeability targets remain to be drill tested.

The **Poplar** copper-molybdenum project reverted back to 100% Lions Gate Metals ownership after Canadian Dehua International Mining formally ended their purchase agreement. Poplar is located 45 km south of Houston and contains estimated indicated resources totalling 171 Mt averaging 0.28% Cu, 0.08 g/t Au, 2.3 g/t Ag and 80 g/t Mo.

TABLE 4. HIGHLIGHT DRILLING INTERCEPTS AT PROSPER GOLD CORP SHESLAY PROJECT

Hole ID	From (m)	To (m)	Width (m)	Cu (%)	Au (g/t)	Ag (g/t)
S024	4.88	317.04 (EOH)	312.16	0.37	0.24	0.69
S025	7	276	269	0.42	0.198	0.61
S026	11	274 (EOH)	263	0.35	0.15	0.63
S027	7	341	334	0.35	0.11	0.84
S027	504	576	72	0.27	0.1	0.57
S028	8	152	144	0.45	0.26	0.8
S029	11	263	252	0.34	0.21	0.71

TABLE 5. ESTIMATED RESOURCES AT THE OOTSA PROJECT USING 0.20 CUEQ CUT-OFF GRADE

Deposit	Category	Tonnes (million)	Cu %	Au g/t	Mo %	Ag g/t
Seel	Indicated	67.7	0.21	0.17	0.015	2.02
Seel	Inferred	410.88	0.16	0.11	0.018	1.95
Ox	Inferred	52.6	0.21	0.03	0.022	1.25

TABLE 6. 2013 DRILLING HIGHLIGHTS FROM THE OOTSA PROJECT

Hole ID	From (m)	To (m)	Width (m)	Cu %	Mo %	Au g/t	Ag g/t
Ox13-46	5.1	167	161.9	0.36	0.028	0.06	1.85
including	19	97	78	0.49	0.035	0.08	2.15
Ox13-62	5.8	86	80.2	0.43	0.035	0.07	1.73
including	44	86	42	0.51	0.041	0.09	1.99
Ox13-70	11.1	202	190.9	0.29	0.035	0.05	1.97
including	144	158	14	0.81	0.03	0.14	6.66
Ox13-80	18.3	246	227.7	0.34	0.032	0.05	1.73
Ox13-110	5.4	108.7	103.3	0.44	0.04	0.06	1.89
Ox13-112	10	125	115	0.39	0.024	0.08	1.91
S13-166	61	179	118	0.33		0.42	2.4
S13-169	18	44	26	0.92	0.009	0.42	28.19

Metal Mountain Resources completed a sixteen hole drill program at the **Big Onion** copper-molybdenum project located 16 km east of Smithers. Approximately 4000 m of drilling aimed to increase confidence in the historic resource and test a strong IP chargeability anomaly immediately southeast of the resource area. Results are pending.

Riverside Resources Inc and strategic alliance partner Antofagasta plc continued exploration of the **Flute** (MINFILE 93L 167) and **Lennac** (MINFILE 93L 190) properties located west of Granisle. Due to extensive till cover, they employed reverse circulation drilling (RC), to collect top-of bedrock chip samples. Seventy-seven drillholes tested 11 targets at Lennac and 66 at Flute. Targets followed up areas of prospective porphyry systems identified in 2012 RC results and airborne magnetic survey targets. Other ground work included IP geophysical surveying, geological mapping, rock sampling and Ah horizon soil sampling. At Flute, efforts were rewarded with the discovery of three intrusive

centres with porphyry-style alteration and accompanying anomalous copper-gold values. One new discovery named the Massive Sulphide Zone, is located adjacent to a circular magnetic feature at a fault junction of regional north-south and northwest trending faults. RC drilling identified intrusive hosted, quartz stockwork veining and potassic alteration with disseminated pyrite.

East of the Massive Sulphide Zone and on the eastern margin of the circular magnetic anomaly, RC drilling discovered a second intrusive centre displaying porphyry-style alteration and disseminated pyrite. RC drilling identified anomalous copper over 1.5 km of strike length, a target for follow up work in 2014. At Lennac, RC drilling identified a zone of anomalous copper bearing quartz-stockwork veining and potassic alteration in hornfelsed volcanics. Ah horizon soil sampling results identified four target areas for future work including a 1.2 km copper anomaly over 120 ppm at the **Red Top** prospect. At the **Mouse** zone, RC drilling identified a 1 km wide zone of pyrite bearing altered volcanics and intrusives immediately east of the Skinbone fault; a

structure interpreted to project through to the past producing Bell and Granisle copper-gold mines.

Astorius Resources Ltd has acquired additional claims to their **Babine Lake** (MINFILE 93L 209) in the immediate vicinity of the past producing Bell and Granisle copper-gold mines. Ground work was limited to 24 line km of IP geophysical surveys designed to complement a 2011 heli-borne magnetometer survey to refine drilling targets planned for 2014.

NICKEL IN ULTRAMAFIC ROCKS

First Point Minerals Corp continued exploration for nickel-iron-alloy at the **Wale** and **Orca** prospects (MINFILE 104I 128) located 45 km and 34 km east of Dease Lake, respectively. Groundwork during 2013 included a 36 line km magnetometer survey at Orca on 200 m spaced lines which increased line density and extended the 2012 grid 2 km to the southeast into covered area. Results indicate a 4.8 km long corridor of strongly magnetic features extending northwest and southeast of the prospect area undercover material. Winter compilation work will involve petrographic studies of surface samples and compilation and interpretation of all data collected to date, aiming to increase understanding of grade distribution. Activities at Wale included detailed mapping, sampling and ground magnetometer surveys. Awaruite (Ni₂₋₃ Fe) is hosted in serpentinized ultramafic rocks of the Cache Creek Terrane. The mineral is integral to an emerging style of nickel deposit being evaluated by First Point and Cliffs Natural Resources at the advanced exploration stage Decar project located in the Omineca Region. Advantages of this deposit type are suggested through mechanical separation of awaruite grains using gravity and magnetic recovery methods versus sulphide flotation.

Hard Creek Nickel Corp is investigating controls and speciation of platinum mineralization at their 100% owned **Turnagain** ultramafic nickel-copper-cobalt project 75 km east of Dease Lake. Studies have been initiated with the BC Geological Survey to increase understanding and economic prospectivity of platinum group elements of the Attic zone. The Attic zone is the interpreted roof of the ultramafic system and independent of the known resource area which contains measured plus indicated resources totalling 865.4 Mt grading 0.21% Ni and 0.013% Co and additional inferred resources totalling 976.2 Mt grading 0.20% Ni and 0.013% Co.

MASSIVE SULPHIDE PROJECTS

“Massive sulphide deposits in the Northwest region comprise of volcanogenic deposits, skarns, mantos, and some of undefined deposit type. Volcanogenic deposits occur in strata of varying ages and terrane affiliation. The Tulsequah Chief deposit is in Paleozoic strata; Kutcho Creek is hosted in early Triassic rocks, and important deposits in the Stewart district are hosted in Jurassic

volcanic rocks. The latter include Eskay Creek, Granduc and Anyox. Manto and Skarn deposits occur where Paleozoic limestone of the ancient continental margin are intruded by Cretaceous to Tertiary plutons.” (revised from Wodjak, 2010)

Stewart District

Agnico Eagle Mines Limited completed their first exploration season as operator of the **Homestake Ridge** gold-silver-copper project (MINFILE 103P 216) located approximately 35 km southeast of Stewart. Agnico signed an option agreement to earn up to 65% of the project from Homestake Resource Corporation by spending \$25.4 M on the project staged over 5 years. Compilation of 2012 drilling results yielded an updated indicated resource estimate totalling 604 Kt averaging 6.4 g/t Au, 48.3 g/t Ag and 0.18% Cu. Additional inferred resources total 6.7 Mt grading 4.2 g/t Au, 93.6 g/t Ag and 0.11% Cu. Both use \$85 NSR cut-offs.

Drilling in 2013 totalled 3947 m in 10 drillholes and examined several new areas and deposit types on the property. Most significant was the discovery of the **Slide** zone located approximately 400 m south of the known Homestake silver deposit. Drillhole HR13-253 returned **18.6 m grading 101.8 g/t silver from 364.4 m, including 0.5 m averaging 1675.0 g/t silver from 364.4 m depth.** Two additional drillholes testing the up-dip projection of the bonanza intercept returned elevated silver values and anomalous pathfinder elements including antimony, barium and arsenic; a similar signature to the Homestake Silver deposit. Mineralization occurs as multiple, epithermal colloform banded quartz-carbonate veins with galena, sphalerite, chalcopyrite and sulphosalts. Other ground work completed this year included geological mapping, soil sampling and 18.9 line km of geophysical surveys. Mapping has identified an interpreted Eskay Creek equivalent horizon in the upper Hazleton Group stratigraphy in two areas on the property. Four holes tested one of these areas located south of the Homestake deposit of which, drillhole HR 13-252 returned 82.5 m grading 1580 ppm Zn and may be indicative of a nearby undetected VMS system. Drilling also targeted a geophysical anomaly adjacent to the Homestake zone, stratigraphy east of the deposits, the Notre Dome area and the stratigraphy to the northwest of the South Reef deposit. Initial metallurgical work results are positive with 80-90% recoveries for both copper and gold and 85-90 for silver. Baseline environmental studies are underway.

Homestake Resource Corporation remains very active in exploring their 100% owned, 68 207 ha claim block named **Kinskuch**, which contains 58 different mineral occurrences and dominates the claim holdings southeast of Homestake Silver. Several targets including the Illiance River Trend, Goldstream, North Lahte Creek, Illiance South, Theophilus Creek and Skuch await further exploration.

Dolly Varden Silver Corp partnered with Hecla Mining and continued re-examining the past producing **Dolly Varden** silver project (MINFILE 103P 188) located 45 km southeast of Stewart. Results from late 2012 drilling confirmed historical high-grade silver including two intercepts grading over 1000 g/t over 1 m and 1.4 m resulting in follow up drilling in 2013 (Fig. 23). Work focussed on the past producing **Torbit** mine (MINFILE 103P 191) and included underground chip sampling from historical workings and 3063 m of drilling in 14 holes. Drill fans were completed from four drill pads and returned significant high-grade silver values summarized in Table 7. Five drillholes validated historical resource areas, the remaining nine holes successfully targeted extensions to the northwest and southeast. Non 43-101 compliant resources compiled in 1986 at Torbit total 786 531 tonnes grading 312 g/t Ag and could at least in part be validated and possibly expanded with most recent drilling. Geological interpretation of the property suggests a silver-rich variety of an Eskay Creek like rift system.

Banks Island Gold Corp validated historical gold values at **Red Mountain** (MINFILE 103P 086) located 18 km east of Stewart. Three drillholes totalling 625 m targeted the high-grade core of the Marc zone aiming to determine grade distribution and acquire material for metallurgical testing. Results returned 71 m grading 4.4 g/t Au and 16 g/t Ag from 130 m depth in drillhole RM13-01 including higher grade intervals up to 21.6 g/t Au over 11 m. Drillhole RM13-03 returned 52.5 m grading 6.3 g/t Au and 16 g/t Ag from 166 m depth including 32 g/t over 7.2 m. Additional work completed included a 66 km² Lidar survey to assist with future site layout and road design. Banks Island intends to re-establish the former Bitter Creek road access in 2014.

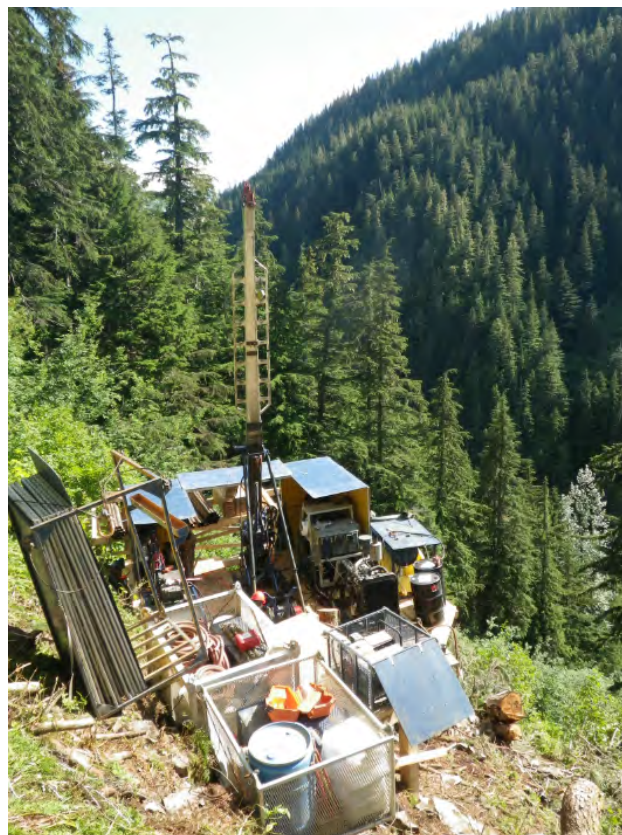


Figure 23. Drilling at the Dolly Varden silver project. Courtesy of Dolly Varden Silver Corporation.

The four defined zones of mineralization include the Marc, AV, JW and 141. Measured plus indicated resources are reported from the all but the 141 zone and total 1.6 Mt grading 8.4 g/t Au and 38 g/t Ag. Inferred resources from all zones total 0.87 Mt grading 5.4 g/t Au and 10 g/t Ag.

TABLE 7. HIGHLIGHT 2013 DRILLING FROM DOLLY VARDEN

Hole ID	From (m)	To (m)	Width (m)	Ag g/t	Pb %	Zn %
TB13-02	92.8	134	41.2	198	0.56	0.41
TB13-03	126.5	143.6	17.1	509	0.73	1.2
including	140.4	143.6	3.2	1458	0.77	1.74
TB13-06	123.7	131.4	7.7	620.5	0.7	0.11
including	123.7	126.6	2.9	1327.4	0.94	0.08
TB13-07	157.2	178.9	21.7	150.4	0.5	0.4
TB13-11	153.5	170.7	17.2	155.3	1.4	1.65
including	153.5	158.1	4.6	244.1	3.44	2.67
TB13-14	211.1	222.6	11.5	673.9	0.41	0.48

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

Brixton Metals Corporation continued to define high-grade silver at the **Thorn** silver-gold-copper-lead-zinc project (MINFILE 104K 031) located approximately 130 km southeast of Atlin. Drilling focussed on following up extreme silver grades at the **Oban** zone while complementary property wide exploration techniques included detailed structural mapping, soil sampling and prospecting. Highly anomalous (up to 2.39 g/t Au) gold-in-soils have defined a 2.5 x 0.9 km area at the **Outlaw** zone (Fig. 24) where five samples returned over 1 g/t Au. Additional high gold-in-soil values were returned from the **Camp Creek Corridor** including 9 samples over 1 g/t Au and a maximum value of 13.5 g/t Au and 81.1 g/t Ag collected approximately 550 m northeast of the Oban breccia. Drilling was completed in two phases and concentrated at the Oban zone and totalled 6078 m in 35 holes. Highlight intercepts are summarized in Table 8. Drilling results from phase two including untested structural and IP targets at Oban East, Talisker and Glenfiddich zones are pending.

BC Gold Corp has signed a letter agreement with Blind Creek Resources to option mineral claims adjacent to the past producing **Engineer** mine (MINFILE 104M 014) from located 32 km west of Atlin. Several gold bearing structures extend from the Engineer mine onto the optioned claims and will be the focus of exploration activities planned for 2014. No ground work was carried out at the property during 2013.

Epithermal and Orogenic veins in the Stewart District

Ascot Resources has extended their option agreement with Boliden Ltd until 2015 to purchase all of the **Premier** gold-silver project assets and continued an aggressive drilling program 13 km north of Stewart. Company owned drilling rigs managed costs and completed 25 742 m in 145 holes spread between Premier, Martha Ellen, Province, S1 and Unicorn zones. Drilling successfully expanded and confirmed bulk-tonnage and high-grade underground gold-silver targets with highlight results summarized in Table 9. In February,



Figure 24. Structural Geologist Joel Angen investigates the Bungee prospect at Brixton Metals Thorn project.

Ascot released an increased resource estimate for the **Big Missouri** (MINFILE 104B 046), the **Martha Ellen** (MINFILE 104B 092) zones incorporating all of the 2012 drilling. Indicated resources total 89.4 Mt grading 0.77 g/t Au and 5.3 g/t Ag with additional inferred resources totalling 20.4 Mt grading 0.67 g/t Au and 4.5 g/t Ag.

Teuton Resources remained active in the Stewart region by completing five drillholes at the **High** property (Fig. 25) located approximately 57 km north of Stewart and on the southern margin of Pretium Resources Brucejack project. Drilling logistics were complicated by poor weather conditions, challenging setup locations and other technical difficulties. Two of the five collared holes did not achieve target depth. Total drilling equated to 306 m and returned one highlight intercept: 0.7 m grading 4.12 g/t Au from 36.15 m depth in drillhole 2013-2.

The **Tennyson** copper-gold property (MINFILE 104B 167), located 38 km north-northwest of Stewart, was sold to privately backed HDI Brigade Resources and evaluated with the adjacent **Tide** copper-gold-silver – molybdenum property (MINFILE 104B 129). Sixteen exploration drillholes targeted the Main and Skarn zones



Figure 25. Looking south towards Teuton Resources High Property.

TABLE 8. HIGHLIGHT 2013 DRILLING FROM THE THORN PROJECT

Hole ID	From (m)	To (m)	Width (m)	Au g/t	Ag g/t	Cu %	Pb %	Zn %
THN13-89	38.2	151.7	113.5	0.14	58.65	0.01	0.13	0.37
including	49	50	1	0.41	1060	0.02	2.78	0.17
THN13-90	5.4	167.03	161.63	0.38	62.15	0.02	0.29	0.79
including	78	105.68	27.68	0.87	108.7	0.04	0.47	2.16
THN13-93	10.27	84	73.73	0.19	21.56		0.13	0.32
THN13-101	0	17.13	17.13	0.22	165.53		0.06	0.02
including	12.19	13.5	1.31	0.66	1275	0.01	0.44	0.01
THN13-112	94.75	100	5.25	0.25	47.32	1.32	0.16	0.43
including	95.4	99	3.6	0.32	66.83	1.91	0.2	0.48

following up 2011 drilling results and 2012 compilation of geological mapping, sampling and geophysics. Drillhole TN13-09 collared in the Main zone returned the best results: 205.54 m grading 0.227 g/t Au, 0.3% Cu and 1.8 g/t Ag. Several discrete intervals of Cu-Au mineralization were also encountered and summarized in Table 10. Brigade does not have further exploration plans for Tennyson and have initiated talks with Teuton to return the property.

Snip Gold Corp acquired additional mineral claims to include a newly constructed all-weather road network and completed limited reconnaissance work at their **Iskut** copper-gold property located 110 km northwest of Stewart. The Iskut property includes the past producing **Johnny Mountain** gold mine (MINFILE 104B 107), the **McFadden** zone (MINFILE 104B 260), **Bronson Slope** gold-copper porphyry prospect (MINFILE 104B 077), and is adjacent to the past producing **Snip** gold mine (MINFILE 104B 250). Highlight hand samples returned 155 g/t Au from the McFadden zone and over 100 g/t Au (assay upper limit) from a sulphide shear vein on strike with the Johnny Mountain mine. Geological mapping also followed up a 1200 x 400 m gold-in-soil anomaly at the **Khyber Pass** (MINFILE 104B 138). Mineralization is interpreted to be related to both the **Pyramid Hill** copper-zinc-gold-silver prospect (MINFILE 104B 207) to the east and the **Inel** (MINFILE 104B 113) gold-copper-silver intrusion related prospect to the north. Compilation of historic work at Inel included 1085 m of underground development as 192 drillholes is ongoing.

Intrusion Related Gold-Silver in the Skeena Arch

HDI Amarc Resources partnered with HDI Quartz Mountain Resources to explore the **ZNT** copper-silver-molybdenum property located 15 km south of Smithers.

The project area was staked on the basis of elevated zinc concentrations in regional till samples reported by Geoscience BC and includes the **King** (MINFILE 093L 041), **Rainbow** (MINFILE 093L 044), and **Colorado** (MINFILE 093L 043) copper-silver-gold past producers. Late 2012 work included soil sampling and 20 line km of IP geophysical surveys and identified coincident silver-in-soil and chargeability anomalies. Activities in 2013 included 170 rock samples and 36 soil samples from 62 pits and trenches which identified silver-rich volcanogenic sandstones. A two hole, 600 m drilling program tested deposit extensions without success. No further work is planned.

HDI Amarc also conducted early stage exploration at their 100% owned **Silver Vista** silver project located approximately 55 km northeast of Smithers where volcanogenic sandstones returned up to 569 g/t Ag and 14.7% Cu (Fig. 26). Sixty-eight pits and trenches were completed around on the previously drilled **MR** showing (MINFILE 093M 195) and concluded that large bulk tonnage silver mineralization is limited. However, several targets on the property remain to be further investigated including two silver targets and a copper-molybdenum porphyry target.

COAL IN THE BOWSER BASIN

The Bowser Lake Group is a Middle Jurassic to Lower Cretaceous sedimentary sequence sourced from the northeast and in-fills the area between the Stikine Arch and the Skeena Arch (Fig. 27). It consists of nine different sedimentary assemblages; of which five are known to be coal bearing and three of those are deltaic facies containing prospective high ranking anthracite coal. The Groundhog-Gunanoot assemblage hosts Canada’s only known anthracite reserves in thirty-three coal seams

TABLE 9. HIGHLIGHT 2013 DRILLING FROM PREMIER - BIG MISSOURI

Hole ID	From (m)	To (m)	Width (m)	Au (g/t)	Ag (g/t)
PR-13-433	28.23	117.85	89.62	1.06	2.7
including	100	101	1	71.6	30.9
PR-13-439	161.5	306.17	144.67	1.37	3.3
including	185	186	1	230	44.3
PR-13-451	174	207.57	35.57	9.66	6.6
PR-13-470	25	96.5	71.5	1.07	4.4
PR-13-473	18	62.5	44.5	1.1	5.7
PR-13-493	229.5	320.23	90.73	1.25	4.4
PR-13-507	123.64	181	57.36	1.68	8.1
PR-13-537	20	85.51	65.51	1.24	7.2

TABLE 10. HIGHLIGHT 2013 DRILLING FROM THE TENNYSON PROJECT

Hole ID	From (m)	To (m)	Width (m)	Cu (%)	Au (g/t)	Ag (g/t)
TN13-02	183.54	311.59	128.05	0.388	0.256	1.3
including	247.56	280.11	32.55	0.686	0.537	2.3
TN13-04a	90.24	96.34	6.1	0.021	2.21	10.8
TN13-06	312.5	330.79	18.29	0.026	1.367	0.7
TN13-09	46.9	252.44	205.54	0.3	0.227	1.8
including	69.51	81.71	12.2	0.783	0.334	4.5
including	148.78	191.46	42.68	0.473	0.361	2.1
TN13-12	36.58	140.2	103.62	0.246	0.129	0.6
including	95.19	115.82	20.63	0.538	0.198	1.1

within the Klappan Formation. True thicknesses range up to 11 metres while twenty eight of the coal seams average 0.5 metres true thickness.

Exploration interests in all coal bearing stratigraphy of the Bowser Lake Group have been renewed with the advancement of existing coal projects in the region. However due to overlapping high cultural and environmental values, the BC government has placed a one year deferral on granting any new coal tenures in the

Klappan Coal License Deferral Area (Map 2). Existing tenures such as those at Actos and Groundhog, will not be affected.

The **Arctos Anthracite** project (formerly Mount Klappan, MINFILE 104H 022) located approximately 160 km NNE of Stewart is jointly owned by Fortune Minerals (80%) and Posco Canada Ltd. (20%). There are four resource areas including Lost Fox, Hobbit Broach, Summit and Skeena. The Lost Fox deposit (Figs. 28, 29)



Figure 26. Volcanogenic sandstones at HDI Amarc Silver Vista property returned to 569 g/t Ag and 14.7% Cu. Courtesy of HDI Amarc.

is the most studied and contains Proven plus Probable Reserves totalling 124.9 million tonnes. Collectively between the deposits, indicated resources total 231 million tonnes and inferred resources total 359 million tonnes. All 2013 activities were conducted around the Lost Fox resource area and designed to acquire environmental, geotechnical, archeological, and hydrogeological data to support an Environmental Assessment application scheduled to be submitted in 2016. Seventeen drillholes were completed and two partially drilled but halted due to protester disruption. A November 2012 Feasibility Study proposes a 3 million tonne per year production rate yielding 10% ash (air dried basis) clean coal over a 25 year mine life.

Approximately 60 kilometres southeast of Arctos, Atrum Coal continued evaluating coal resources at the **Groundhog** deposit (MINFILE 104A 078). Multiple thick, near surface, flat lying, continuous, high ranking anthracite coal seams have been identified and a prefeasibility study is underway. Definition drilling totalled 64 holes aiming to achieve reserve definition and acquire material for advanced material testing including bulk sampling. Drilling consistently intercepted the #70 coal seam in thicker intervals (up to 6.8 m thick) and shallower than expected. An updated JORC (Joint Ore Reserves Committee) compliant resource estimate incorporating historical and 2012 drilling increased

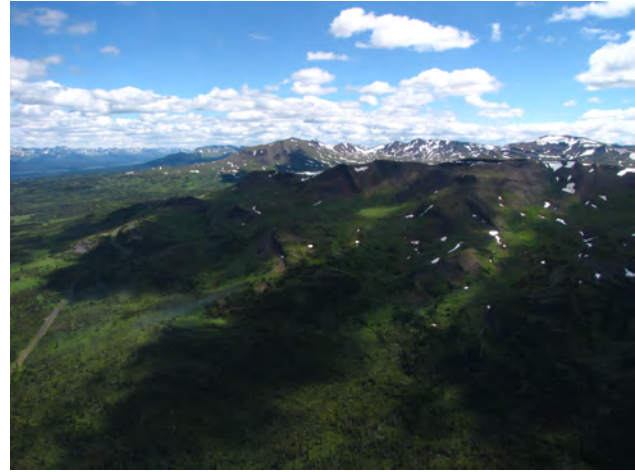


Figure 28. Overlooking the Lost Fox resource area of the Actos Anthracite coal project.



Figure 29. High rank anthracite coal seam in contact with overlying mudstone in the Mount Klappan formation, Gunanoot-Groundhog assemblage, Bowser Lake Group.

measured plus indicated resources to 569 Mt with additional inferred resources totalling 998 Mt of pure anthracite using cut-off parameters of 0.3 m coal

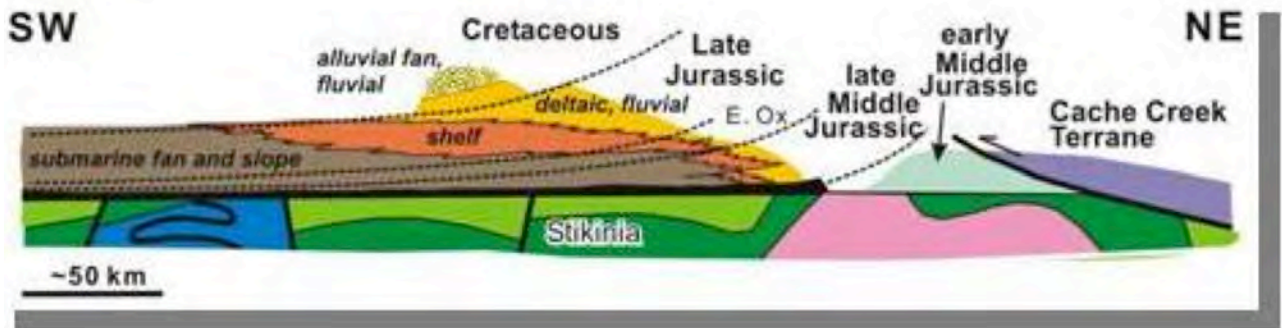
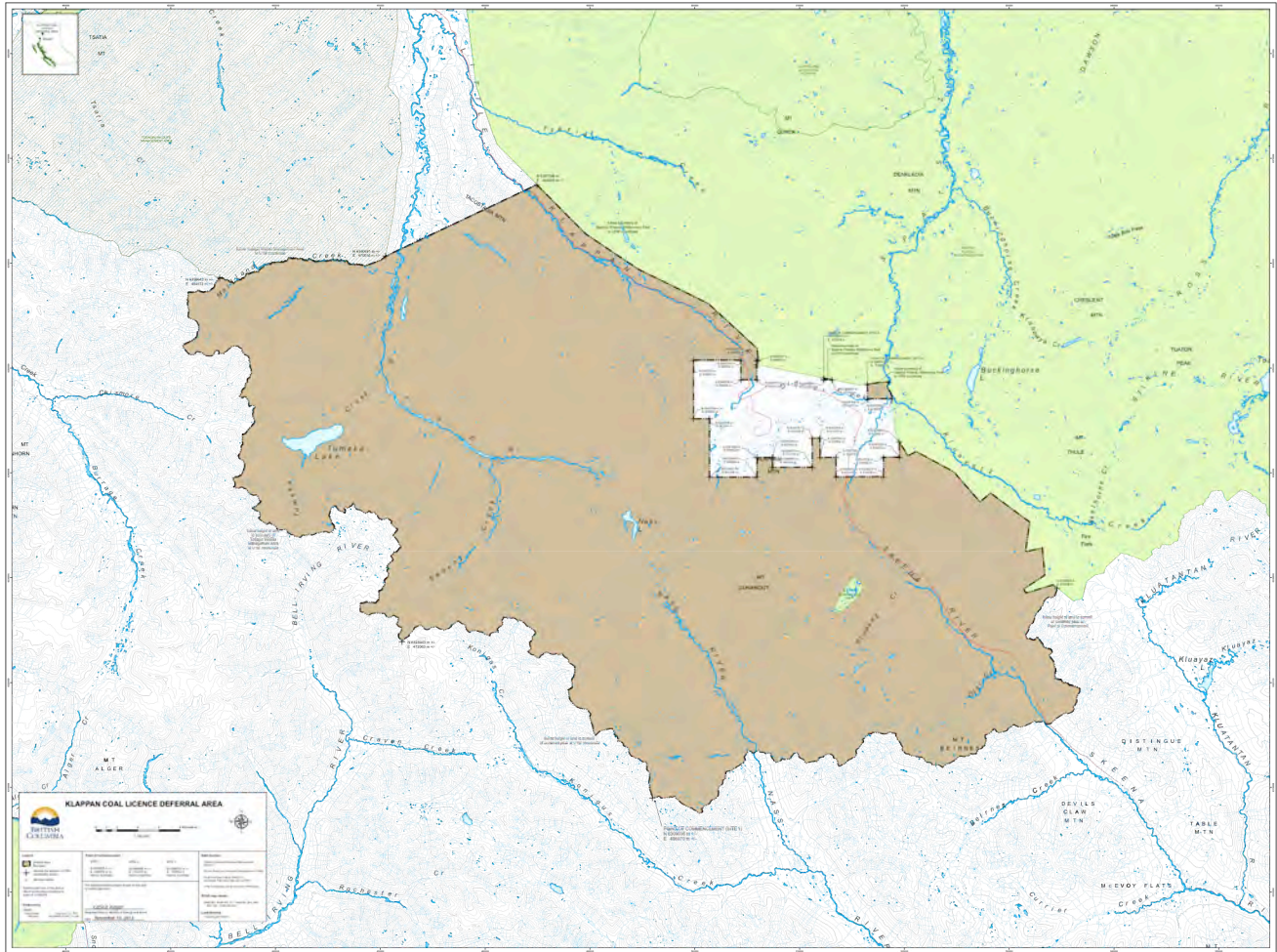


Figure 27. Schematic facies assemblages of the Bowser Lake Group. From Evanchick and Thorkelson, 2003.



Map 2. One year coal licence deferral zone in the Klappan area.

thickness and 100 m setbacks from rivers. A scoping study released in August focuses on the northwest zone and a 1.8 Mtpa run-of-mine operation and an initial capital expenditure of a modest \$62M. Planning for a 10 000 tonne bulk sample from the #70 seam is underway alongside off-take agreements and environmental baseline monitoring. Coal will be transported initially by truck to Stewart Bulk Terminals where storage and shipping arrangements have been made. The existing BC rail grade near the property allows for potential future growth to rail transport to Prince Rupert or Vancouver.

rest of the Smithers Mines Office, JoAnne Nelson, Tian Han and Lauren Wilson and the BC Geological Survey, Regional Hydrologist Scott Jackson, The Smithers Exploration Group, Jim Logan, Tom Schroeter, Paul Wojdak, Regional Geologists Paul Jago, Bruce Northcote, Fiona Katay, Mineral Development Geologist Bruce Madu, GIS support from Cindy Barden, Blair Ells, Andy Muma and Gabriel Li. Errors or omissions remain the responsibility of the writer.

ACKNOWLEDGMENTS

This report is made possible by the openness and willingness of companies operating in northwestern BC. The overall amazing hospitality and helpfulness of mine staff, exploration geologists and prospectors is sincerely appreciated. 2013 was the authors second full year in the role of Regional Geologist thank everyone for their patience as orientation takes place of this geologically diverse and highly active area. Valuable assistance was provided by Doug Flynn, Jill Pardoe, Bruce Graff and the

TABLE 11. SELECTED EXPLORATION PROJECTS, SKEENA REGION, 2013

Property	Proponent	MINFILE	Deposit Type	Commodities	Work (Proposed) Actual
Babine (Astorius)	Astorius Resources Ltd	093L 209	Porphyry	Cu	GP (IP, 24 Line km), GC (Soils), G
Ball Creek	Blue Gold Mining	104G 018	Porphyry	Cu, Au	C
Bell Copper	Glencore Canada Corporation	093M 001	Porphyry	Cu, Au	C, Environmental, Water Treatment,
Big Onion	Metal Mountain Resources	093L 124	Porphyry	Cu, Mo, Au Ag	DD (4000 m, 16 holes)
Big Hammer	Doug McRae / Jetgold option			Au, Ag, Te	G, GC
Bronson (Snip 1)	Snip Gold Corp.	104B 077	Porphyry	Au, Cu, Ag	G, GC
Brucejack	Pretium Resources Inc.	104B 193	Porphyry	Au, Ag	underground development ramp to VOK zone, 10,000 tonne bulk sample from 4 cross cuts, 16,789 m u/g drilling in 201 holes and in 17 fans, 16,500 m u/g exploration drilling, 5,000 m surface exploration drilling, 2 raise developments on Cleopatra vein,
Castle	West Cirque resources / Freeport MacMoran	104G 076	porphyry	Au, Cu, Mo, Ag	DD (1859 m, 4 holes)
Clone	Teuton Resources Corp & Canasia Industries Corp	103P 251	Vein / Breccia	Au	G
Copau	Victory Ventures	104H 036	Porphyry	Cu, Au	(drilling IP anomalies, 5 DD, ~ 2000 - 2500 m)
Copper Creek / Sheslay	Firesteel Resources Inc. JV with Prosper Gold	104J 035	Porphyry	Cu, Au	DD (2339.74 m, 6 holes), GC (3565 Soils), GP (29 line km IP, 1462 line km airborne MAG and RAD)
Deer Horn	Deer Horn Metals Inc.	093E 019	Vein / Breccia	Au, Ag, Te	PEA released March 2013 for 74,000 T / yr milling op; SUB EA threshold; \$27.8 M Capex; 14 year Mine Life;
Dilworth - Big Missouri	Ascot Resources Ltd.	104B 044	Vein / Breccia	Au, Ag	DD (25,742 m, 145 holes), G,GC
Dolly Varden	Dolly Varden Silver Corporation (Carrington Acquisition Corp)	103P 188	Vein / Breccia	Ag	DD (3036 m, 14 holes), G, GC,
Dome Mountain	Metal Mountain resources / Gavin Mines Ltd	093L 022	Vein / Breccia	Au	Mine permit ammedment
Eaglehead	Carmax Explorations Ltd.	104I 008	Porphyry	Cu, Mo	G, GC,
Eldorado	Colorado Resources Ltd JV with Sunrise Resources		Porphyry	Au, Cu	DD (1431 m, 5 holes)
Emerald Glacier (Miya)	Lowprofile Ventures Ltd	093E 001	Vein / Breccia	Zn, Ag, Pb, Cu, Au	G, GP, GC
Engineer	BC Gold Corp.	104M 014	Vein / Breccia	Au	
Flute	Riverside Reources	093L 167	Porphyry	Cu, Au, Ag, Mo	RC (66 holes), GC (725 Ah Soils), G, GP (IP)
Fireside	Fireside Minerals Ltd.	094M 003	IM_Rock	Barite	DD (5200 m, 78 holes)
Four J's	Rotation Minerals Ltd	104B 128	Massive Sulphide	Au, Ag	
Galaxie	HDI - Amarc + Quartz Mountain		Porphyry	Cu, Au, Ag, Mo	G, GC (Rock Chips & Soils), GP (IP, 10 line km)

TABLE 11. CONT'D.

Property	Proponent	MINFILE	Deposit Type	Commodities	Work (Proposed) Actual
Galore Creek	Galore Creek Mining Corp.	104G 090	Porphyry	Au, Cu	DD (11 400 m), G, GC
GJ	Teck Resources Limited	104G 034	Porphyry	Cu, Au	DD, G, GC
Gnat Pass	HDI - Amarc + Quartz Mountain	104I 001	Porphyry	Cu, Au	DD (1164 m, 2 holes), G, GC, GP
Granduc	Castle Resources Inc.	104B 021	Massive Sulphide	Cu, Ag, Au	C
Grizzly	Garibaldi Resources	104G 079	Porphyry	Cu, Au	G, GP (Airborne MAG & RAD)
Groundhog	Atrum Coal	104A 078	Metallurgical Coal	Anthracite Coal	DD (36 holes), G, GC, C, EM
Hanson Lake	John Chapman / Gerry Carlson		Porphyry	Mo, Cu	G, GC,
Hat	Tom Lisle & Erik Ostensoe / Doubleview Capital Corp.	104J 015	Porphyry	Cu, Au, Ag	DD (2587.3 m, 11 holes), GP (15 line km IP)
High	Teuton resources		Vein / Breccia	Au, Ag	DD (306 m, 5 holes)
Homestake Ridge	Agnico Eagle Mines + Homestake Resource Corporation	103P 216	Vein / Breccia	Au, Ag, Zn	DD (3947 m, 10 holes), GP (IP, 18.9 line km), G, GC (soils)
Horsefly	Winrock Resources Inc.	103H 013	Vein / Breccia	Au	G, GC (Rock chips)
Huckleberry Mine	Huckleberry Mines Ltd.	093E 037	Porphyry	Cu, Mo, Au Ag	11 DD, 3462 m (7DD , 1750 m Q4) soils, Mining
Iskut (Johnny Mountain)	Spirit Bear Minerals Ltd.	104B 107	Vein / Breccia	Au, Ag, Cu	G, GC
KSM	Seabridge Gold Inc.	104B 103	Porphyry	Au, Cu, Mo, Ag	DD (32,274 m, 40 holes) IP (10 line km), MAG (4.7 line km), EM (8.6 line km), G, GC
Kinskuch	Homestake Resource Corporation		Massive Sulphide	Au, Cu	
Kiniskan	Colorado Resources Ltd		Porphyry	Au, Cu	G, GC (Soils, Rock Chips)
Kitsault Mine	Avanti Mining Inc	103P 120	Porphyry	Mo	Permitting
Kutcho Creek	Capstone Mining Corp.	104I 060	Massive Sulphide	Cu, Zn, Ag, Au	C
Kutcho Jade	The Continental Jade Ltd	104I 078		Jade	Mining
Kshish	Jet Gold Corp.	103I 034		Mo	G
Lennac Lake	Riverside Resources	093L 190	Porphyry	Cu, Mo	RC (11 holes), G, GC (Ah soils), IP
Morrison	Pacific Booker Minerals Inc.	093M 007	Porphyry	Cu	C
Mount Klappan / Actos	Fortune Minerals Limited	104H 022		Anthracite Coal	DD (1800m, 17 holes), ENV,
New Polaris	Canarc Resource Corp.	104K 003	Vein / Breccia	Au	C
North Rok	Colorado Resources Ltd	104H 035	Porphyry	Cu, Au	DD (11,448 m, 29 holes), IP (69 line km), MAG (101 line km), AB (208 line km), G (10 km mapping), GC (1,572 soils)
Ootsa	Gold Reach Resources Ltd.	093E 004	Porphyry	Cu, Au, Ag, Mo	DD (36,135 m, 147 holes), IP (60 line km), GC (1330 soils)

TABLE 11. CONT'D.

Property	Proponent	MINFILE	Deposit Type	Commodities	Work (Proposed) Actual
Pliny	West Cirque resources / Freeport MacMoran	104I 026	Vein / Breccia	Cu, Au	GC, (148 soils), G,
Poly	Frontline Gold Corp	104A 177	Massive Sulphide	Au, Ag	(1500 m DD)
Poplar	Lions Gate Metals Inc.	093L 239	Porphyry	Cu, Mo	C
Provencher Lake - Letain	Glenpark Enterprises Ltd.	104I 092		Jade	Mining
QC	Teck Resources Limited		Porphyry	Cu, Au	G, GC
Quinn Eskay	Cache Exploration	104B 342	Vein / Breccia	Au, Ag, Cu, Zn	G,GC (Rock chips) (IP, Driling)
Red Chris	Imperial Metals Corp. (Red Chris Development Company Ltd.)	104H 005	Porphyry	Cu, Au	Mine Construction
Red Chris North	Serengetti Resources		Porphyry	Cu, Au	GC, (62 RC, 83 Soils, 84 silts), G
Red Mountain	Bank Island Gold	103P 086	Other	Au	DD (685 m, 3 holes), G, GC, Lidar (66 km2)
ROK (Coyote)	OZ Minerals JV with Firesteel	104H 012	Porphyry	Mo, Cu	DD (1740 m, 3 holes) 315 line km airbourne MAG and Radiometrics, 26.5 line km 3D IP, , Geological mapping,
Schaft Creek	Copper Fox Metals Inc.	104G 015	Porphyry	Cu, Mo, Au, Ag	DD, G, GC, C
Silver Coin	Jayden Resources Inc - Mountain Boy Minerals Ltd JV	104B 150	Vein / Breccia	Au, Ag, Pb, Zn	G
SIB (Eskay)	Eskay Mining Corp & St. Andrew Goldfields	104B 376	Vein / Breccia	Au, Ag	C
Silver Hope	Finlay Minerals Ltd.	093L 256	Vein / Breccia	Ag, Cu	G, GC
Silver Queen	New Nadina Explorations Limited	093L 002	Porphyry	Cu, Mo	DD (4413.3 m, 6 holes), GC, G
Silvertip	Silvercorp Metals Inc. (New Pacific Metals Corp)	104O 038	Sedimentary Replacement	Ag, Pb, Zn, Au	C
Silver Switchback	Far resources Ltd	093L 195	Massive Sulphide	Ag, Cu	G, GC (Rock Chips, Soils)
Silver Vista (MR)	Amarc Resources Ltd.	093M 195	Sedimentary Replacement	Ag, Cu	G, GC (Rock Chips & Soils)
Snip North	Snip Gold Corp.	104B 312	Vein / Breccia	Cu, Au	G, GC
Summit A,B (Kitty),C,D	Revolver Resources	104H 015	Porphyry	Cu, Au	G, GC (RC), 3D IP,
Tanzilla	West Range Exploration Ltd	104I 023	Porphyry	Cu, Au	IP, G, GC
Table Mountain	China Minerals Corp.	104P 029	Vein / Breccia	Au	G, GC (Soils, Rock Chips)
Taurus	China Minerals Corp.	104P 012	Vein / Breccia	Au	G
Tennyson	Teuton Resources Corp. / Brigade Resources	104B 167	Unknown	Cu, Au	DD, (16 holes), G, GC

TABLE 11. CONT'D.

Property	Proponent	MINFILE	Deposit Type	Commodities	Work (Proposed) Actual
Thorn	Brixton Metals Corp	104K 031	Vein / Breccia	Au, Cu	DD (6078 m, 35 holes) GC (1386 soils, rock chips), G,
Trek	Romios Gold Resources Inc.	104G 022	Vein / Breccia	Au, Cu	G, GC (Rock Chips)
Tulsequah Chief	Chieftain Metals Inc	104K 002	Massive Sulphide	Cu, Zn, Ag, Au	DD (3540m, 9 holes), GP (IP), G,
Turnagain	Hard Creek Nickel Corp.	104I 119	Magmatic	Ni, Co, Pt, Pd, Cu	G, GC
Wale	First Point Minerals Corp.		Serpentine UM	Ni, Fe	G, GC (Soils) GP (Ground mag)
Yellow Chris	Teuton optioned to Redhill Resources		Porphyry	Cu, Au	G, GC (454 soils)
Yellow Giant	Banks Island Gold	103G 021	Vein / Breccia	Au, Cu, Ag	(35 000 m DD, proposed 200 tpd milling and test mining
Zetu-Nerock	Ashburton Ventures Inc.		Porphyry	Cu, Au	G
ZNT	HDI Amarc		Porphyry	Cu, Au, Ag, Mo	DD (600 m, 2 holes), G, GC (soils, rock chips), GP (IP, 20 line km), T

Work Program Abbreviations:

A = access (trail, road construction on claims); AB-EM = airborne electromagnetics; AB-MG = airborne magnetics; AB-RD = airborne radiometrics; BU (X tonnes) = bulk sample (weight in tonnes if known); CD = condemnation drilling; CQ = coal quality testing; CT = carbonization test (coal); DD (Xm) = diamond drilling totalling X metres; EN = environmental baseline studies/monitoring, remediation work; FS = feasibility studies; G = geology, mapping etc.; GC = geochemical sampling (rock, soil, silt etc.); GD = geotechnical drilling; GP = geophysics (general); IP = induced polarization; 3D-IP; MG = magentics; MK = marketing (primarily for industrial mineral products); MS = metallurgical studies; OB = overburden drilling; OP-BU = open pit bulk sample; P = prospecting; PD = percussion drilling; PF = pre-feasibility studies; PP = pilot plant; R = reclamation; RC (Xm) = reverse circulation drilling totalling X metres; TR = trenching; UG (Xm) = X metres of underground development; UG-BU = underground bulk sample; UT = UTEM;