

NORTHWEST REGION

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SUMMARY AND TRENDS

Mineral exploration activity in 2005 increased significantly for the third successive year. Exploration spending in the Northwest soared to \$99.5 million, an 80% increase over 2004 (see Figure 2.1). Exploration drilling rose to about 197 000 metres (see Figure 2.2) which demonstrates increased work on advanced properties. There were 52 large projects, 51 of which included drilling. Robust prices for copper, molybdenum, gold and coal caused many dormant prospects to be reactivated. Three major mines continue to operate in the region; two more projects hold Environmental Assessment certificates allowing development of new mines, and a further seven are in the Environmental Assessment process.

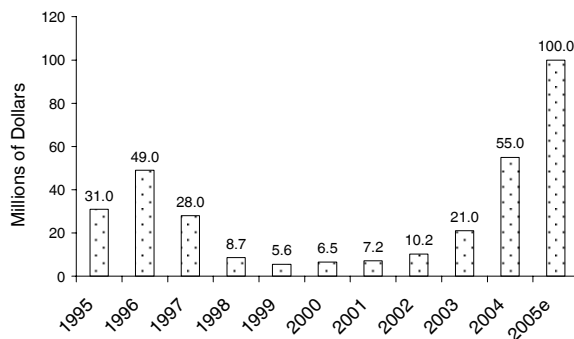


Figure 2.1. Exploration expenditures in Northwest British Columbia.

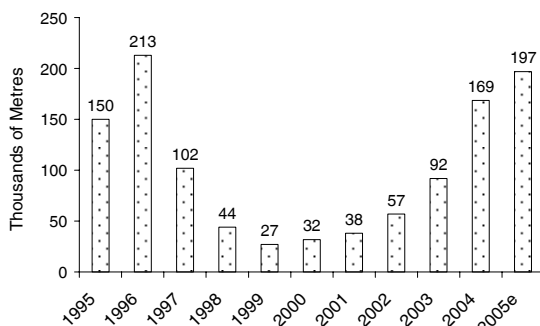


Figure 2.2. Exploration drilling in Northwest British Columbia.

The Endako open pit molybdenum mine celebrated its 40th year of operation in 2005. The low-cost mine, operated by Thompson Creek Mining, completed a large waste rock-stripping program to access more ore and prolong mine life. Gold and silver production from the rich Eskay Creek mine decreased. Owned by Barrick Gold Corporation, ore reserves will be exhausted in early 2007. Copper production from the Huckleberry open pit copper mine increased but Imperial Metals Corp and its partners chose not to mine an extension of the Main zone. With just two years of reserves, Huckleberry is scheduled to close in 2007. Ore reserves and forecast 2005 production for all the mines are shown in Table 2.1.

Highlights of exploration and pre-development work include

- Red Chris received an Environmental Assessment (EA) certificate for a 30 000 tonne per day open pit copper-gold mine. Subsequently, bcMetals Corporation lobbied for an extension of the BC power grid to enable a development decision.
- Galore Creek porphyry copper-gold project was the largest exploration program in British Columbia; 200 field personnel processed 63 000 metres of core; ‘ground-truthed’ the preferred “modified” northern access route, and conducted engineering and environmental fieldwork. NovaGold expects to submit the Project Report for a 65 000 tonne per day mine to the Environmental Assessment office in early 2006.
- Davidson molybdenum project restored underground mine services. Blue Pearl Mining aims to develop an underground mine and truck ore to an existing mill. Submission of the EA Project Report is anticipated in the spring of 2006.
- Klappan anthracite coal project lies within the largest undeveloped coalfield in BC. Fortune Minerals collected coal resource and environmental data to prepare the EA Project Report, expected in mid-2006. Rail or road infrastructure must be built to ship the coal to offshore markets.
- Three more mine development proposals are in the EA process: Adanac molybdenum, Kutcho Creek copper-zinc and Morrison copper-gold projects. Adanac Moly Corp, Western Keltic Mines Inc and Pacific Booker Minerals Inc, the respective owners, collected engineering and

TABLE 2.1. MINE PRODUCTION AND RESERVES, NORTHWEST REGION

Mine	Operator	Employment	2005 Production (Unofficial, approx)	Reserves (effective date)
Endako	Thompson Creek Mining Ltd & Sojitz Moly Resources Inc	240	4300 t molybdenum	Endako Pit, 29.1 mt at 0.071% Mo; Denak Pit, 22.7 mt at 0.070% Mo; Stockpile, 22.2 mt at 0.046% Mo (Oct. 1, 2005)
Eskay Creek	Barrick Gold Corp	320	5500 kg gold, 290 000 kg silver	439 901 t at 36.3 g/t Au, 1632 g/t Ag (Jan 1, 2005)
Huckleberry	Huckleberry Mines Ltd (50% Imperial Metals Corp)	230	34 000 t copper 250 t molybdenum	19.4 mt at 0.529% Cu, 0.015% Mo, 0.059 g/t Au, 2.98 g/t Ag (Jan 1, 2005)
Fireside	Fireside Minerals Inc	25 (seasonal)	10 000 t barite	Not available

environmental data. Project Reports are anticipated in the second half of 2006.

- Swamp Point aggregate project of Ascot Resources Ltd, intends to load sand directly onto ocean-going vessels from its site on the Portland Canal. The Project Report for Environmental Assessment was submitted in October.
- Some of many notable exploration successes: Kinaskan, (or GJ) copper-gold project of Canadian Gold Hunter Corp, Kerr-Sulphurets gold-copper project of Falconbridge Limited, CR copper-molybdenum project of Manson Creek Resources Ltd, Homestake Ridge gold-silver project of Bravo Venture Group Inc and the Silver Coin gold project of Pinnacle Mines Ltd.

Table 2.2 lists all exploration projects in the region where expenditures exceeded \$100 000 and their locations are shown in Figure 2.3. Porphyry copper-gold was the most sought after deposit type, but porphyry copper-molybdenum prospects also came to be a popular target in 2005. There was a rush to revive long-dormant porphyry molybdenum projects. These generally require new drilling to validate resources under new Security Exchange requirements. Several companies continued to explore for a gold-silver rich VMS deposit like the Eskay Creek mine.

A significant new trend is the proposed development of large sand and gravel pits along the Pacific coast, for shipment of construction aggregate to urban Pacific Rim markets. Looking ahead to 2006, one of the most important factors influencing mineral exploration and development in the region is the decision whether to extend the BC power grid.

MINES AND QUARRIES

METAL MINES

The **Eskay Creek** underground gold-silver mine, owned by Barrick Gold Corporation, is forecast to produce 5500 kg of gold and 290 000 kg of silver in 2005. Since start-up in 1995 ore grade has diminished and at the beginning of 2005 the average reserve grade was 36 g/t gold and 1600 g/t silver, see Table 2-1. Mine production is approximately 550 tonnes per day and reserves will be exhausted by early 2007. Historically the mine produced two direct-shipping ore blends, one for the Noranda smelter in Quebec and a second to suit the DOWA smelter in Japan but this very high-grade ore is nearly depleted. Concentrate from the 300 tonne per day (tpd) mill is also shipped to the Noranda smelter. Including contractors, 320 people are employed at Eskay Creek. Mining is by drift-and-fill because of the weak host rock. Eskay Creek employs conventional and mechanized mining methods (Figure 2.4). Aggregate for cemented stope back-fill is extracted from the Iskut River on a seasonal basis, hauled 25 km to the mine site and then mixed with cement prior to placement. The maximum width of stopes in the upper (21B) workings is 2.4 metres and lifts are 2.7 metres. Deeper in the mine, geotechnical conditions allow for slightly larger stopes.

Eskay Creek (MINFILE 104B 008) is a volcanogenic massive sulphide deposit with exceptional gold and silver content and occurs in mudstone and footwall rhyolite at the top of the early Jurassic Hazelton Group. The strataform 21B ore body consists of clastic sphalerite, tetrahedrite – freibergite, boulangerite, other lead-sulphosalts and pyrite in the Contact Mudstone. The 21B zone is rich in gold and silver but also contains high levels of mercury, antimony and arsenic that requires it to be shipped to smelters for treatment. The cut-off grade for shipping ore is 30 g/t gold equivalent. Ore that is treated

TABLE 2.2. MAJOR EXPLORATION PROJECTS IN NORTHWEST REGION, 2005

Property	Operator	Minfile	Commodity	Deposit Type	Work Program
Ajax	Tenajon Resources Corp	103P 223	Mo	Porphyry	DD (1165 m)
Cassiar Moly	Eveready Resources Corp	104P 035	Mo	Porphyry	DD (928 m)
Copper Creek	Firesteel Resources Inc	104J 035	Cu, Au	Porphyry	TR (509 m); DD (1524 m)
Corey	Kenrich Eskay Mining Corp	104B 011, 355	Au, Ag	Epithermal VMS	DD (6901 m)
CR	Manson Creek Resources Ltd	93L 007, 269	Cu, Mo	Porphyry	GC; DD (1580 m)
Dardanelle	Tradewinds Ventures Inc	103I 107	Au	Vein	TR; DD (294 m)
Davidson (Yorke-Hardy)	Blue Pearl Mining Ltd	93L 110	Mo, W	Porphyry	EN; UG (rehab); DD
Del Norte	Sabina Resources Limited	104A 176, 161	Au, Ag	Epithermal Vein	AB-EM; DD (1400 m)
Eaglehead	Carmax Explorations Ltd	104I 008	Cu, Au	Porphyry	Grid; IP, 25 km
Eskay Creek	Barrick Gold Corp	104B 008	Au, Ag	Epithermal VMS	UG-DD, 16 000 m
Eskay	St Andrew Goldfields Limited	104B 383, 385	Au, Ag	Epithermal VMS	DD, 2293 m
Fireweed	Argentor Resources	93M 151	Ag, Pb, Zn	Manto, Replacement	IP
Foremore	Roca Mines Inc	104G 148	Cu, Zn, Ag, Au	VMS	AB-EM / MG; DD (2200 m)
Galore Creek	NovaGold Inc	104G 090, 092, 095, 099	Cu, Au	Skarn, Alkalic Porphyry	3D-IP; DD (54 409 m); DD-MS (3496 m); GD (5330 m); EN
Gnat Pass	Bear Claw Capital Corp	104I 001	Cu, Au	Alkalic Porphyry	IP
Golden Eagle	Signet Minerals Inc	104M 057, 075, 085	Au	Epithermal Vein; Skarn	GP; DD (733 m)
Granduc	Bell Resources Corp	104B 021	Cu, Ag, Au	VMS	G; AB EM/MG; DD (2090 m)
Homestake Ridge	Bravo Venture Group Inc	103P 216, 082, 093	Au, Ag, Zn	Intrusion-related Gold	G; DD (1644) m
Huckleberry	Huckleberry Mines Ltd	93E 037	Cu, Mo	Porphyry	DD (6388 m)
Kalum	Eagle Plains Resources Ltd	103I 173	Au	Intrusion-related Gold	DD (540 m)
Kerr-Sulphurets	Falconbridge Limited	104B 103, 173, 176, 182, 285	Cu, Au	Porphyry	G; DD (4092 m)
Kinaskan (GJ)	Canadian Gold Hunter Corp	104G 034, 086	Cu, Au	Porphyry	G; DD (16 394 m)
Kizmet	Barrick Gold Corp	104K 074, 090	Au	Epithermal	G; GC
Klappan	Fortune Minerals Limited	104H 021	Anthracite	Coal	EN; DD (2144 m); RC (951 m)
Kutcho Creek	Western Keltic Mines Inc	104I 060	Cu, Zn, Ag, Au	VMS	DD (7372 m)
Lakeview	Cangold Limited	93L 030	Cu, Zn, Ag, Au	VMS	DD (794 m)
LCR	Eagle Plains Resources Ltd	103I 021	Mo, Cu, Au	Porphyry	DD (2428 m)
Louise Lake	North American Gem Inc	093L 079	Cu, Au, Mo	Porphyry	DD (2407)
Lucky Ship	New Cantech Ventures Inc	093L 053	Mo	Porphyry	IP; DD (3804 m)
Morrison	Pacific Booker Minerals Inc	093M 007	Cu, Au	Porphyry	EN; DD (~ 1700 m); MS
Newmont Lake	Romios Gold Resources Inc	104B 281, 282	Au, Cu	Skarn	G; AB-MG; 3D-IP
New Polaris	Canarc Resource Corp	104K 003	Au	Mesothermal Vein	DD (2357 m)
Poly	Lateegra Resources Corp	104A 026, 128	Au	Shear Vein	DD (908 m)
Poplar	Aumega Discoveries Limited	93L 239	Cu, Mo, Au	Porphyry	DD (~3000 m)
Porcher Island	Cross Lake Minerals Ltd	103J 017	Au	Vein	DD (~1000 m)
Ranch	Strategic Metals Ltd	104O 037	Ag	Vein, stockwork	G; TR
RDN	Northgate Minerals Corp	104G 144	Au, Ag, Pb, Zn	VMS	G; DD (1470 m)
Red Bird	Torch River Resources Ltd	93E 026	Mo	Porphyry	G; GC
Red Chris	bcMetals Corporation	104H 005	Cu, Au	Porphyry	EN; FS
Rox	Goldsource Mines Inc	93E new	Au, Ag	Epithermal	DD (595 m)
Ruby Creek	Adanac Molybdenum Corp	104N 052	Mo	Porphyry	EN; GD, CD (4984 m)
Sam	CJL Enterprises Ltd	93L 260	Ag, Au, Cu	Epithermal	DD (305 m); PD (790 m)
Schaft Creek	Copper Fox Metals Inc	104G 015	Cu, Mo, Au	Porphyry	EN; DD (3161 m); MS
Seel	Gold Reach Resources Ltd	93E 105	Cu, Au	Porphyry	DD (1740 m)
Silver Coin	Pinnacle Mines Ltd	104B 095	Au, Ag, Pb, Zn	Vein	DD
Summit Lake	Tenajon Resources Corp	104B 034	Au	Intrusion-related vein	DD (2666 m)

TABLE 2.2. CONTINUED

Property	Operator	Minfile	Commodity	Deposit Type	Work Program
Swamp Point	Ascot Resources Ltd	103O 017	Sand	Aggregate	PD (596 m); EN; FS
Taurus	Cusac Gold Mines Ltd	104P 016, 077	Au	Orogenic gold	DD (3423 m)
Thorn	Cangold Limited & Rimfire Minerals Corp	104K 031	Au, Ag, Cu	High sulfidation vein	G; IP; DD (656 m)
Tide	Serengeti Resources Inc	104B 129	Au, Ag	Intrusion-related	G; AB-EM / MG; DD (967 m)
Treasure Mtn	Tradewinds Ventures Inc	103I 090	Ag, Cu	Vein	TR; DD (163 m)
Tulsequah Chief	Redfern Resources Ltd	104K 002	Cu, Zn, Ag, Au	VMS	FS; R
Turnagain	Hard Creek Nickel Corp	104I 051, 119, 120	Ni, Pd, Pt	Magmatic	DD (7143 m)
Tyee	24/7 Timber Limited	103I 202	Dimension Stone	Industrial Mineral	DD (760 m); G; MK
Whiting Creek	Huckleberry Mines Limited	93E 049, 050	Cu, Mo	Porphyry	DD (1149 m)
Williams Gold	Rimfire Minerals Corp	94E 028, 044	Cu, Mo, Au	Porphyry	G; IP
Yellow Jacket	Prize Mining Corp	104N 043	Au	Orogenic gold vein	MG; DD (895 m)

in the on-site mill comes from the NEX zone, which is the northern extension of 21B, and from Hanging Wall and Footwall zones. Metal zoning is such that low levels of deleterious metals are present in NEX ore. Hanging wall ore comprises sulphide beds in mudstone intercalated with basalt above the Contact Mudstone. Footwall ore occurs in rhyolite below the Contact Mudstone and consists of gold enrichment along faults and in areas of silica and sericite alteration. The 109-footwall zone had ideal milling characteristics but was mined out in late 2004. The 21C footwall zone has poor milling characteristics and is erratic in gold grade. With respect to exploration, a comprehensive geologic review identified targets that were tested by approximately 16 000 metres of drilling from mine workings. The primary targets were depressions in the top of the rhyolite inferred from isopach maps, and were of small tonnage potential due to proximity of prior drillholes. No results are available.

The **Endako** open-pit molybdenum mine, owned 60% by Thompson Creek Mining Ltd and 40% by Sojitz Moly Resources Inc, celebrated its 40th year of operation in 2005. Reserves are sufficient until 2013. Endako ore averaged 0.060% molybdenum during the year, a lower grade than in 2004. The in-pit crusher and two new 190-tonne trucks purchased in 2005 contribute to Endako's low cost of production, compensating for the mine's low ore grade and enabling it to operate through periods of low molybdenum price. The mill normally processes 30 000 tonnes per day and recovers about 78% of the molybdenum sulphide, all of which is converted to molybdic oxide in the on-site roaster.

Feedstock for the roaster was supplemented by a small amount of concentrate from Highland Valley Copper and offshore mines, on a toll basis. Some eighty-five per cent of the oxide is shipped to Asia; the balance goes to U.S. and Canadian buyers. In 2004

Endako halted co-production of Ultrasure, its trademarked molybdenum sulphide lubricant, in favour of producing more oxide, which is more profitable. The work force ranged from 240 to 250 people.



Figure 2.4. Underground jackleg miner at Eskay Creek.

Endako (MINFILE 93K 006) is a porphyry molybdenum deposit within the early Cretaceous Francois Lake granite batholith. Mineralization is related to an aplitic phase that intrudes an older coarse-grained variety. The ore body is a 3.5-kilometre long stockwork zone that is elongated to the west-northwest and dips about 50° south to a depth of 330 metres. The hanging wall of the ore zone is delineated by the South

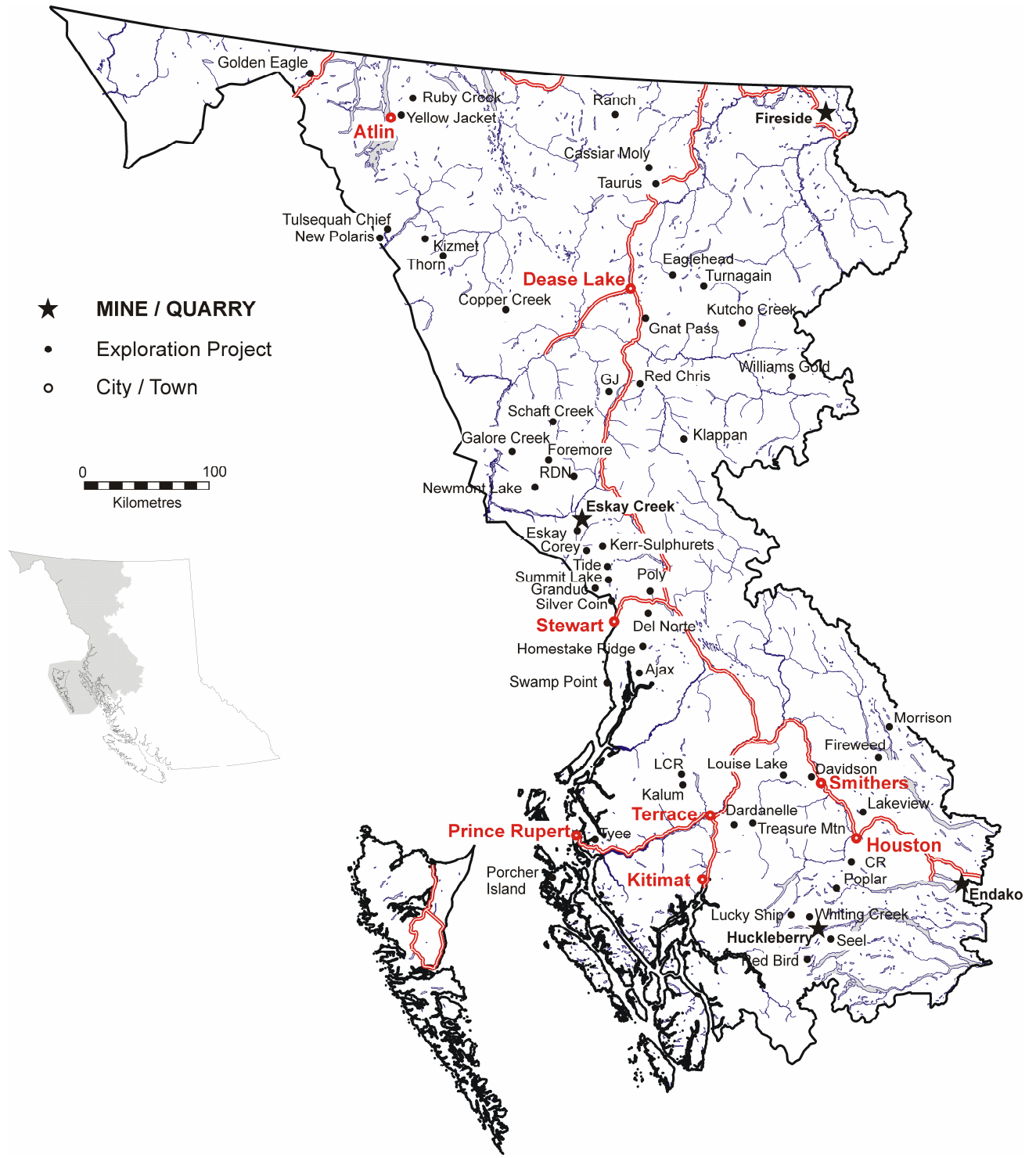


Figure 2.3. Location map, Mines and Exploration Projects in Northwest British Columbia, 2005.

Basalt fault. The company completed a major stripping program in the Endako pit, to access ore and stabilize the north and south walls. Instability occurs where moderately dipping fractures intersect cross faults resulting in wedge failures. At times, ore from a low-grade stockpile is used to supplement pit production. At year-end Endako began a 4500-metre exploration drill program.

The **Huckleberry** copper mine is operated by Huckleberry Mines Ltd and owned 50% by Imperial Metals Corp and 32% by Mitsubishi Material Corp The remaining 18% is shared equally among Dowa Mining Ltd, Furakawa Company Ltd and Marubeni Corp The mine is located 121 kilometres by road south of Houston at the foot of Huckleberry Mountain; the mountain is a key constraint in stripping. In 2004 the mill processed 6 867 153 tonnes of ore grading 0.454% copper and 0.014% Mo. Huckleberry began to stockpile low grade ore in 2005. Copper production is forecast at 34 000 tonnes, up from 2004. Copper recovery in 2004 averaged 85.9% but molybdenum recovery was just 20.4%. The metallurgical cause of such poor molybdenum recovery at Huckleberry is unknown (P. Ogrzylo, pers. comm.). Molybdenum recovery is projected to be significantly better in 2005 and production is forecast to increase by 50% to 250 tonnes. Copper concentrate is trucked to the port of Stewart for shipment to Japan and molybdenum concentrate is trucked to Vancouver. The mine employs 230 people.

Huckleberry (MINFILE 93E 037) is a porphyry copper deposit related to the late Cretaceous Bulkley intrusions. Copper mineralization, which occurs in two zones one kilometre apart, is developed within a granodiorite stock but is more extensive in the adjacent hornfelsed and fractured volcanic rocks. The ore is a stockwork of quartz, pyrite and chalcopyrite, crosscut by gypsum-filled fractures. The intrusions and biotite hornfels zone are controlled by a fault that trends 110°. All the ore mined in 2005 came from the East pit. Flat holes drilled in 2004 from the pit floor to alleviate instability of the East Pit high wall (the base of Huckleberry Mountain) were very successful. Water dammed behind the 110° fault was drained, which reduced pressure on the pit wall and there were no wall failures in 2005. Early in the year, the East zone resource was recalculated based on a copper price of US\$1.05, which resulted in a 3 million tonne addition to reserves.

Exploration drilling of an area northwest of the Main zone, named the Main Zone Extension, began in 2004 and continued with an additional 6000 metres in 2005 (Figure 2.5). The work delineated a copper-molybdenum zone about 550 metres by 200 metres in plan and to a maximum depth of 200 metres, with sharp upper and lower boundaries, that appears to be a faulted offset of the Main zone. On December 15, Huckleberry Mines decided not to mine the Main Zone Extension. A financial analysis determined that that the copper price must exceed

US\$1.50 per pound in 2008 and 2009 in order that mining the Main Zone Extension would be more profitable than the current mine plan. The company noted the operational risk engendered by proximity to the Main pit, which contains waste rock and mill tailings. The decision could be revisited until late 2006.



Figure 2.5. Drilling the Main Zone Extension at Huckleberry copper mine.

INDUSTRIAL MINERAL QUARRIES

At **Fireside** (MINFILE 94M 003), 125 km east of Watson Lake, Fireside Minerals Ltd quarried 15 000 tonnes of rock to yield 10 000 tonnes of barite. Fireside Minerals is a private company based in Calgary. Mining and trucking were contracted to Jedway Enterprises Ltd of Watson Lake. Run-of-mine material was concentrated using jigs at the mine site then crushed and bagged at a plant in Watson Lake. Fireside employs a total of 25 on a seasonal basis. The product is used in the very active western Canadian oil and gas drilling industry where the current demand for barite drilling mud is strong. Fireside plans to produce 20 000 tonnes of barite in 2006.

Fireside barite occurs in two coarse-grained, fault-controlled veins within rocks of the lower Paleozoic Kechika Group. For several years, all production has been from the Bear vein. The Bear vein strikes east northeast, dips steeply north and is up to 10 metres wide. To the north, the vein is bounded by buff-brown phyllite and on the south by black siltstone and quartzite that is fractured and in-filled by quartz and calcite. Ten holes totaling 750 metres were drilled on the Bear and nearby Moose vein. Additional resources are deduced to exist at the north end of the previously mined Moose vein.

Five jade properties were active in the Dease Lake and Cassiar areas; Cassiar, Polar Jade, Blue J, Kutcho and Two Mile. Nephrite jade is found at the contact between tectonically emplaced serpentinite and argillite within the Cache Creek and Slide Mountain oceanic terranes. Jade production data was kindly provided by Ernest Hatzl, president of Cassiar Jade Contracting Ltd. Cassiar Jade Contracting recovered 28 tonnes of high-quality jade by sorting rock in the waste dump at the closed **Cassiar** chrysotile asbestos mine (MINFILE 104P 005),

employing up to 5 people. At **Polar Jade** (MINFILE 104I 083) near Serpentine Lake, Cassiar Jade Contracting partnered with Jedway Enterprises Ltd to cut and transport 14 tonnes of high-quality jade from previously mined blocks. The two companies produced 4 tonnes from **Blue J** (MINFILE 104I 062) east of Provencher Lake (Figure 2.6). All this jade, some 46 tonnes, was trucked to the facilities of The Jade West Group in Surrey BC to be sold, mainly to Chinese and Korean buyers. The market price for high-quality jade is Cdn \$3.50 per pound. A drilling program at Polar Jade, of about 300 metres in 15 holes, failed to locate more jade (D. Schussler, pers. comm.). At **Provencher Lake** (MINFILE 104I 073, 092), Glenpark Resources Ltd hauled about 150 tonnes of mid-quality jade in large blocks to Dease Lake for transshipment to Washington state for use in the building industry. King Mountain Jade Mines Inc produced 40-50 tonnes of mid-quality jade from the Two Mile deposit (MINFILE 104I 103) for sale in Dease Lake and Jade City.



Figure 2.6. Near Provencher Lake, diamond-sawing jade blocks to assess quality.

MINERAL EXPLORATION

ATLIN AREA

Adanac Moly Corp completed 19 drillholes on the **Ruby Creek** molybdenum deposit (104N 052) and continued baseline environmental studies. The company proposes to build a 20 000 tonne per day open pit mine; *Terms of Reference* for the project are under review by the BC Environmental Assessment office. Current drilling recovered material for a metallurgical study, tested rock quality of the proposed pit wall and explored the southern limit of the ore zone. The information is being used in a feasibility study due for completion by 2005 year-end. Estimated capital cost is Cdn \$320-420 million. Prior to 2005 fieldwork, the company announced a NI 43-101 compliant geological resource (measured plus indicated) of 205.1 million tonnes grading 0.062% Mo, at a cut-off grade of 0.04% Mo. The deposit is a quartz-molybdenite

stockwork that occurs near the domal top of a multi-phase stock, a satellite of the highly differentiated Surprise Lake granite batholith. Molybdenite veins are predominantly gently dipping and are preferentially located in a flat-lying aplite body. The 150 to 200-metre thick, blanket-shaped molybdenum zone lies near surface in the broad valley of upper Ruby Creek, and is rooted in the steeply dipping, north-trending Boulder Creek fault (R. Pinsent, pers. comm.). The molybdenum zone is truncated by erosion to the south and down-dropped north of the 070° striking Adera fault where, due to rising topography it is effectively inaccessible to open-pit mining. The mineralized zone may extend southwest; in 1973, a 335-metre vertical hole collared 170 metres west of the known deposit bottomed with 36.6 metres grading 0.103% molybdenum. Exploration drilling of this area is planned in 2006.

The **Golden Eagle** property of Signet Minerals Inc straddles Tutshi Lake, near the Yukon border 60 km northwest of Atlin. Signet Minerals acquired the mineral interests of Marksmen Resources Limited and performed horizontal loop-EM and IP surveys, trenching, and drilled 7 holes to follow up prospecting and airborne geophysical targets. From north to south, 2 holes were drilled in the Skarn or Bennett Lake zone (MINFILE 104M 085), 3 in the Tannis zone (MINFILE 104M 074), also known as Middle Ridge, and 2 in the Camp zone (MINFILE 104M 057), also referred to as the Carbonate zone. In the Skarn zone gold occurs in quartz-carbonate-tremolite veins in mafic volcanic rocks of the Stuhini Group. At Middle Ridge (Figure 2.7), the target is a series of epithermal quartz-tennantite veins containing significant gold and silver in a north-striking, steep dipping rhyolite dike (S. Casselman, pers. comm.). The rhyolite dike is 100 metres wide and cuts Boundary Range metamorphic rocks. Trench 9 in the Tannis zone returned an average assay of 2.57 g/t gold over 15.5 m. Fifty meters below the trench, drillhole Tan 2 intersected 10.7 g/t gold and 104 g/t silver across 5.5 m. In the Camp zone, the target is a gold soil anomaly associated with felsic volcanoclastic rocks that are altered to quartz, sericite and pyrite.



Figure 2.7. Drilling at Middle Ridge (Tannis zone) on the Golden Eagle property; courtesy of Aurora Geosciences Ltd.

In the heart of the Atlin placer gold camp, Musko Minerals Corporation performed a 50 km magnetic survey and, late in the year, resumed drilling on the **Yellow Jacket** gold prospect (MINFILE 104N 043). Gold at Yellow Jacket occurs in listwanite-altered fault zones near the contact between serpentinitized ultramafic and mafic volcanic rocks of the oceanic Cache Creek terrane. Drill programs in the 1980s by Canova Resources Ltd and Homestake Mineral Development Corp yielded intercepts of 10-35 g/t gold over widths up to 4 metres but continuity could not be demonstrated. Drilling by Musko is focused in the same 300 metre interval along Pine Creek. Six holes were drilled in the Yellow Jacket zone and 1.5 km to the southwest, three holes were drilled in the Rock of Ages zone, for a total of 895 m.

TULSEQUAH-TAKU AREA

Redfern Resources Ltd updated the resource estimate for the **Tulsequah Chief** deposit (MINFILE 104K 002) in early 2005, following the 30 000 metre drill program done in the previous year. Measured and Indicated resources total 5.38 million tonnes at a grade of 1.41% copper, 1.32% lead, 6.73% zinc, 2.73 g/t gold and 100.8 g/t silver. The figures represent an approximate 10% decrease in tonnage and total metal content from the previous estimate. Of at least equal significance, the Inferred resource was nearly halved to 1.54 million tonnes at 1.13% copper, 1.07% lead, 5.44% zinc, 2.23 g/t gold and 85.1 g/t silver. The drilling program determined the principal H ore zone is restricted in strike length at depth, and it is also disrupted and/or displaced by the 5300 fault. Ore-related alteration remains strong at depth and the faulted continuation of the deposit may well be found, but will require deep drillholes with risk of being lost in the fault zone. Redfern began an update of the feasibility study done in 1995 but the work was halted in mid-year when it became apparent that increased capital and operating costs, combined with the downgraded resource estimate, made the project financially unattractive.

Redfern built a passive system to treat acid water draining from the 5200 level of the mine. The system consists of four cells totaling 90 m in length. The cells contain 300 tonnes of limestone that was quarried nearby, 150 tonnes of screened gravel and 120 cubic metres of organic matter. Local vegetation was fed through a chipper to produce the necessary material. The purpose of the organic material is to retard the rate of flow, allowing the limestone to neutralize the acidic water. The treatment system is expected to mitigate any detrimental effects the drainage may have on the Tulsequah River.

At the **New Polaris** gold property (MINFILE 104K 003), across the Tulsequah River from the Tulsequah Chief project, Canarc Resource Corp completed eight in-fill drillholes in the C-vein system. The ninth hole was lost in 70-metre deep overburden. Gold is associated with disseminated arsenopyrite in conjugate, shear-controlled quartz-ankerite vein stockworks and listwanite alteration

developed within Devonian mafic volcanic rocks. The shear zone is a splay of the 220 kilometre-long Llewellyn fault. A previous resource estimate of 3.26 million tonnes grading 12.3 g/t gold is not compliant with Canadian policy NI 43-101. The objective of the current program is to block out proven and probable resources in the C-vein by reducing the spacing between drill intercepts from 60 to 30 metres, beginning down dip of two old stopes in the former Polaris-Taku mine. In the 2005 holes, the weighted average of the principal C-vein intercepts is 14.2 g/t gold over 8.0 m and the hanging wall C-vein intercepts averaged 15.8 g/t gold over 3.5 m. True width is estimated to be 85 to 90% of the core length.

Cangold Limited and Rimfire Minerals Corporation continued exploration of the **Thorn** gold-silver prospect (MINFILE 104K 031) by a program of geological mapping, geophysics and drilling. The target at Thorn, located 125 km southeast of Atlin, is a high-grade epithermal gold deposit associated with the tetrahedrite-enargite veins developed on the property. Five holes were completed, totaling 656 m. Hole THN05-37 intersected 4.44 g/t gold, 407.9 g/t silver and 2.95% copper over 4.2 metres in Talisker zone, discovered in 2004. The host rock in the Talisker zone is strongly sericitized, quartz and biotite porphyritic Thorn stock.

The **Kizmet** project is a joint undertaking of Barrick Gold Corporation and Rimfire Minerals Corporation to explore a 70 km long by 20 km wide belt of rocks adjoining the Thorn property. MTO, the new system of on-line mineral tenure acquisition, was important because it enabled a large land package to be obtained quickly and cheaply. The area from Tatsamenie Lake northwest to the Taku River is underlain by Upper Cretaceous subaerial volcanic rocks and related intrusions that are prospective for epithermal, high sulphidation gold deposits. There are many mineral occurrences in the area, such as MINFILE 104K 074 and 104K 090. Work comprised reconnaissance geological mapping and prospecting. Regional geochemical silt (RGS) data was supplemented by collection of additional 10 kg silt samples for bulk leach extractable gold (BLEG) analyses.

CASSIAR-RANCHERIA AREA

Cusac Gold Mines Ltd shifted exploration from the high-grade gold veins on Table Mountain to a bulk tonnage gold target area 4 km to the north, named **Taurus II** (Figure 2.8). Targets include the following vein systems, Backyard - Newcoast (MINFILE 104P 016), Somerville and Porcupine (MINFILE 104P 077), which flank Troutline Creek north of Highway 37.

A total of 18 holes were drilled totaling 3423 metres. In the Backyard zone, hole 05BY-01 cut 2.03 g/t gold over 32.0 m. In the Somerville zone, hole 05SV-03 intersected 1.27 g/t gold over 19.0 m. Hole 05SV-04 returned a nearly identical intercept of 1.26 g/t gold over 25.6 m. Results of the final five holes are not released yet.

Gold occurs in quartz-sulphide veins in carbonate and listwanite-altered mafic volcanic rocks, within a Paleozoic succession of structurally imbricated oceanic rocks known as the Sylvester allochthon, a part of the Slide Mountain terrane.



Figure 2.8. Overlooking the Table Mountain mill site and Taurus II project area from Table Mountain.

Strategic Metals Ltd acquired ten mineral properties distributed widely between Rancheria and Galore Creek. Work focused on the **Ranch** property (MINFILE 104O 037), located 25 km south of the Yukon border at Rancheria. Very high-grade silver occurs in discontinuous quartz veins with minor base metal sulphides and bismuthinite, within the Cassiar granite batholith. Work comprised geological mapping, hand trenching and prospecting by six people.

Velocity Resources Inc acquired the Storie molybdenum (MINFILE 104P 069) and Haskin Mountain molybdenum (MINFILE 104P 020, 38) deposits but drill programs were deferred.

TURNAGAIN-UPPER STIKINE AREA

Western Keltic Mines Inc submitted the **Kutcho Creek** project for Environmental Assessment to develop a 3000 to 4000 tonne per day mine. The Kutcho Creek volcanogenic massive sulphide deposit (MINFILE 104I 060) is located 100 km east of Dease Lake. Three elongate sulphide lenses are arranged en echelon over a strike length of 3.5 km within folded felsic volcanic rocks of early Triassic age. Following the 2004 program, the company announced the Kutcho deposit contains a Measured and Indicated resource of 11 554 000 tonnes grading 2.10% copper, 2.80% zinc, 36.2 g/t silver and 0.44 g/t gold (at a 1% copper cut-off). Measured and Indicated resources in the deeper but higher grade Esso West lens are 2 120 000 tonnes grading 3.26% copper, 5.86% zinc, 75.7 g/t silver and 0.71 g/t gold (at a 1.5% copper cut-off). Drilling in 2005 comprised 26 holes for a total of 7372 metres. The upper edge of the Kutcho deposit was extended closer to surface, which will reduce the strip ratio for proposed open pit mining. A higher-grade core was identified in the Sumac massive pyrite body, which was previously discounted as being non-

economic, that would offset cost of an underground decline to access the Esso West deposit. Drilling for a westerly extension of Esso West failed to extend the deposit. Planning to mitigate acid generation from tailings and waste rock will be important in developing the Kutcho Creek deposits (Figure 2.9).

Hard Creek Nickel Corporation continued exploration for a bulk-tonnage nickel deposit on the **Turnagain** property, 110 kilometres east of Dease Lake. The 3 by 8 kilometre Turnagain serpentinized ultramafic body contains zones of disseminated, net-textured pyrrhotite with minor pentlandite and rare chalcopyrite. Based on relict igneous textures, the Turnagain ultramafite is comprised of dunite, wehrlite, pyroxenite and hornblendite. Dunite and wehrlite contain the highest levels of nickel (T. Hitchins, pers. comm.). Prior to the field program, the company announced the Horsetrail zone contains an Indicated resource of 15.7 million tonnes grading 0.34% nickel, 0.07% copper and 0.019% cobalt, and an Inferred resource of 31.6 million tonnes at slightly lower grades. Selective analytic methods indicate nickel is present mainly as sulphide. It has been suggested that during emplacement the ultramafic magma was highly reduced by the graphitic argillite country rock causing nickel to be strongly partitioned to the immiscible sulphide phase.

The 2005 program comprised 37 drillholes totaling 7143 metres, which included in-fill drilling in the Horsetrail zone (MINFILE 104I 119) and holes to investigate airborne EM targets. DDH05-85 in the Highland EM anomaly, 3 km northwest of Horsetrail, intersected 0.38% nickel over a 17.5 m interval of disseminated pentlandite and pyrrhotite. West of the Horsetrail zone, near the southern contact of Turnagain ultramafite, DDH05-88 intersected 0.86 g/t platinum plus palladium over 18.9 m at the end of the hole. The Horsetrail zone was extended 350 m to the west. Upon calculation of a new resource estimate, the company plans to begin a preliminary economic assessment that will include geology, metallurgy and mine engineering.



Figure 2.9. Kutcho Creek, cells to test for generation of acidic run-off water using rock from the adit, built in 1980s.

At the **Eaglehead** copper prospect (MINFILE 104I 008), Carmax Explorations Ltd completed a 25 km IP survey over the eastern extension of a 10 km long zone of porphyry mineralization. The most easterly of 59 holes drilled during previous exploration between 1970 and 1981 intersected 0.94% copper over 63 metres. Drilling is planned in 2006 to investigate this high-grade intercept and, in the Far East zone, to test IP and soil anomalies. Carmax proposes to access the property by extending a trail 6 km from placer gold workings on Bobner Creek, a minor tributary of the Turnagain River.

At **Gnat Pass** (MINFILE 104I 001) Bear Claw Capital Corporation cut a grid and performed a 32 km IP survey. Gnat Pass is an alkalic porphyry copper prospect located 26 km south of Dease Lake, adjacent to Highway 37.

Rimfire Minerals Corporation delineated a strong IP chargeability anomaly on the **William's Gold** property, 140 km east of Dease Lake. The 1500-metre long IP zone is coincident with a copper-molybdenum-gold soil anomaly and associated porphyry mineralization (MINFILE 94E 028 and 044). The anomalies are 4 km north of the area previously explored for a bulk-tonnage gold deposit (see *EMBC-2002, 2003, 2004*).

TELEGRAPH CREEK AREA

At **Copper Creek**, Firesteel Resources Inc completed 12 drillholes totaling 1524 metres and trenched 500 metres in the DK porphyry copper prospect (MINFILE 104J 035). The program continued drilling begun in 2004. Monzonite, probably an apophysis of the Kaketsa pluton, intrudes mafic volcanic rocks and bedded tuffs of the Stuhini Group. Quartz stockwork, with chalcopyrite more abundant than pyrite, is developed across the intensely fractured intrusive contact over an area that now measures 500 metres by 500 metres in plan and 250 metres deep. Secondary copper minerals (malachite, azurite and sooty chalcocite) predominate in the upper 30-60 metres from the surface. Supergene copper enrichment is evident from assay data of some holes. Grades range from about 0.2 to 0.5% copper and 0.06 to 0.3 g/t gold, with up to 1% copper in enriched zones. The zone is open to expansion and two other zones of porphyry copper and skarn mineralization remain to be explored. The property is 50 km northwest of Telegraph Creek and 8 km from the Golden Bear mine road.

Copper Fox Metals Inc collected material for a metallurgical study from the **Schaft Creek** porphyry copper deposit (MINFILE 104G 015) by drilling 3161 m of P-size core in 15 holes. The property, located 50 km south of Telegraph Creek, is under option from Teck Cominco Ltd. Based on 60 000 metres of prior drilling, Copper Fox estimates Schaft Creek to contain a combined Measured and Indicated resource of 332 million tonnes grading 0.39% copper, 0.026% molybdenum and 0.267 g/t gold, at a 0.4% copper equivalent cut-off. Most of the current drilling twinned historic holes, to validate assay

data and to gain a better assessment of gold content (Figure 2.10). Copper Fox also began environmental and road access studies, and plans to enter the Environmental Assessment process in early 2006 (G. Salazar, pers. comm.). The deposit is comprised of three zones; all current work is in the principal Liard zone and the internal West Breccia zone (tourmaline bearing), the smaller Paramount zone is 400 m north. The host rocks are feldspar and augite-phyric volcanic rocks of the Stuhini Group, invaded by dikes derived from both the westerly adjacent Hickman granodiorite batholith and, in the Paramount zone, from the northerly adjacent Yehiniko granite pluton. Mineralization has been genetically linked to the Upper Triassic Hickman intrusion. The ore minerals are chalcopyrite, pyrite, bornite and molybdenite, listed in order of decreasing abundance. The geometry of the Liard zone is atypical of porphyry deposits; it is bowl-shaped with sub-horizontal copper grade contours. The comparatively low abundance of pyrite will reduce the risk of acidic runoff, in the event the deposit is mined.



Figure 2.10. Schaft Creek, cutting P-size core to provide samples for assay and metallurgical study.

Forty-five kilometres west of Telegraph Creek, Newcastle Minerals Ltd performed an airborne magnetic and radiometric survey over the **Target** claims (MINFILE 104G 149). Previous explorers traced a mineralized boulder train with high gold grade to the Limpoke glacier. The property has potential to host a high-grade gold vein or copper-gold porphyry deposit related to the nearby Limpoke pluton.

KINASKAN AREA

The **Red Chris** copper-gold project received an Environmental Certificate on August 11, 2005 concluding its progress through the Environmental Assessment process. The proponent, bcMetals Corporation, has not decided to construct the mine pending a commitment to extend the Provincial power grid 230 km up Highway 37 to Iskut. Mineable reserves at Red Chris (MINFILE 104H 005), excluding low-grade stockpile material, are estimated at 185.4 million tonnes at 0.414% copper and

0.325 g/t gold and, if mine development proceeds, would supply a 30 000 tonne per day mill. Stockpile material is estimated to be 92.4 million tonnes grading 0.216% copper and 0.145 g/t gold and would be milled after the higher grade ore. The initial waste to ore ratio is 2.3, declining to 1.1 after processing the stockpile material. Capital costs are estimated to be \$228.5 million. A new 22-kilometre road would connect the mine to Highway 37. Investigation into the on-site production of metallic copper and gold by a new hydrometallurgical process achieved gold recovery that was below expectation and the work was halted. Instead, copper concentrate would be trucked to Stewart for transshipment to smelters.

The **GJ** (or Kinaskan) property of Canadian Gold Hunter Corp includes the GJ and Donnelly zones (MINFILE 104G 034 and 086) of porphyry copper-gold mineralization related to the poorly exposed Groat monzonite stock. The property is 25 km southwest of Iskut. Drilling of the Donnelly zone in 2004 derived a resource estimate of 71.2 million tonnes grading 0.40% copper and 0.40 g/t gold at a 0.2% copper cut off. Work in 2005 comprised 56 holes that totaled 16 394 metres. Two holes tested the North zone with disappointing results, ten were in the GJ zone and the remainder comprised in-fill and step-out holes at Donnelly. Donnelly zone results continued to be encouraging. The zone is now known to be 1500 metres long, still open at both ends, and is up to 300 metres wide. To the west, the Donnelly zone narrows but contains higher grade; the final hole, and most westerly drilled to date, intersected 0.83% copper and 1.32 g/t gold across 46.95 metres. This tenor and width may be more amenable to underground mining rather than open pit. A revised resource calculation is in progress. Monzonite is medium-grained, non-porphyrific and moderate to strongly magnetic. Dikes and sills of monzonite intrude mafic volcanic rocks and volcanic wackes of the Stuhini Formation. Mineralization occurs as disseminated chalcopyrite and as a quartz-chalcopyrite stockwork that is most intense to the west (D. Mehner, pers. comm.). Pyrite is subordinate to chalcopyrite; bornite and molybdenite are rare. K-feldspar occurs in the groundmass, colouring the rock pink, and as vein envelopes. In mineralized areas, K-feldspar is altered to sericite and magnetite is replaced by hematite. Ankerite is prominent as a pervasive, late alteration mineral.

On the **Rok** claims (104H 001) north of Ealue Lake, Firesteel Resources completed 125 km of airborne electromagnetic and magnetic surveying to aid exploration for a porphyry copper deposit.

ISKUT DISTRICT

At **Galore Creek**, NovaGold Inc expanded the camp to accommodate 200 people and carried out a \$50 million program that required 10 drills and 6 helicopters. Work comprised 63 235 metres of drilling, site and access engineering studies, and environmental assessment. Drilling focused on infill and resource extension but also

included geotechnical study, recovery of material for metallurgical assessment, and exploration for new mineral zones. Prior to the 2005 program Measured plus Indicated resources were estimated at 516.7 million tonnes grading 0.60% copper, 0.36 g/t gold and 4.54 g/t silver with an additional 578.3 million tonnes inferred at a grade of 0.41% copper, 0.42 g/t gold and 4.35 g/t silver. In terms of project design, the most significant developments are: (1) selection of a 'modified' northern access route; a 120 km, single lane road that follows the valleys of More and Sphaler creeks to the Porcupine River and enters Galore Creek valley by a 4 km tunnel from Scottsimpson Creek (Figure 2.11); (2) a planned milling rate of 65 000 tonnes per day with tailings disposition in Galore Creek valley and (3) transport of concentrate as a slurry through a 6-inch (15 cm) pipeline buried in the road bed to a dewatering facility at Bob Quinn. The company aims to deliver a Project Report to the Environmental Assessment office in February 2006, and to complete a full feasibility report by September 2006.

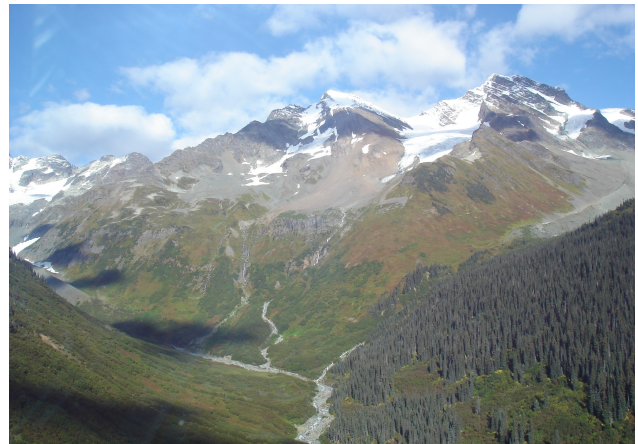


Figure 2.11. Entrance of the proposed 4 km tunnel at the head of Scottsimpson Creek, leading to the rich Galore Creek copper-gold deposits on the north side of the mountain.

Geologic origin of copper-gold deposits at Galore Creek remains enigmatic. In a geologic presentation at Cordilleran Roundup in 2005, NovaGold's Chief Geologist Scott Petsel observed that mineralization is more akin to a skarn or replacement deposit than to a porphyry deposit; a stockwork, quartz-bearing or otherwise, is not developed. Garnet, potassium feldspar, biotite, magnetite and epidote are associated with chalcopyrite, bornite and pyrite. The zones drilled in 2005 are: Central (MINFILE 104G 090), Southwest (MINFILE 104G 095), Middle Creek (MINFILE 104G 156), West Fork (MINFILE 104G 091), North Junction (MINFILE 104G 092), Copper Canyon (MINFILE 104G 017) and Butte (MINFILE 104G 094). The evolving geological model used by NovaGold identifies a favourable horizon in the alkaline volcanic pile (Figure 2.12), recognized by abundant pseudoleucite (a relict feldspathoid mineral) that was receptive to a copper-bearing potassic solution (S. Petsel, pers. comm.). The hydrothermal fluid was derived from an underlying alkaline intrusion. Application of the

model discovered new mineralization in the Butte zone, in contrast to poor results obtained by drilling IP anomalies.



Figure 2.12. North Junction zone at Galore Creek, copper mineralization in sub-horizontal alkalic volcanic rocks.

At the **Kerr-Sulphurets** property, 40 km southwest of Bell II, Falconbridge Limited completed 4092 metres of drilling in 16 holes, distributed over six zones. The objective was to assess the potential for additional gold-rich porphyry copper resources to enhance viability of the Kerr and Sulphurets deposits outlined by previous explorers of the property. The Kerr deposit is estimated to contain 141 million tonnes grading 0.75% copper and 0.36 g/t gold and Sulphurets is estimated to contain 54.8 million tonnes grading 1.02 g/t gold. Placer Dome Inc made both resource calculations in 1993, prior to NI 43-101. At Iron Cap (MINFILE 104B 173), five holes spaced 200-300 metres apart and 250 metres deep, penetrated quartz-sericite-pyrite altered monzonite and andesite. Very fine-grained chalcopyrite occurs throughout four of the holes; over their entire assay lengths of 243 to 249 metres, the four holes returned an average grade of 0.20% to 0.22% copper with 0.27 to 0.52 g/t gold.

One hole was drilled in the West Mitchell zone (MINFILE 104B 176), near the toe of the Mitchell glacier. Over its full assay length of 279.1 metres, it returned 0.17% copper and 0.65 g/t gold. Two holes were drilled in the Icefield zone (MINFILE 104B 203) and both returned multiple intercepts, up to 23.1 metres of 0.45% copper in one hole and 126 metres of 0.51 g/t gold in another. Falconbridge tested three other zones: Main Copper (MINFILE 104B 182; 3 holes), North Mitchell (MINFILE 104B 180; 3 holes) and MacQuillan (104B 285; 1 hole). At Main Copper, long intervals of low-grade copper-gold mineralization were encountered in each hole, including 70 metres at 0.33% copper and 0.32 g/t gold. Both Main Copper and Icefield are proximal to the Sulphurets Gold deposit (Figure 2.13); the former is immediately above the Sulphurets zone and Falconbridge interprets the latter to be its northeast extension (M. Savell, pers. comm.). Any resources developed in the Main Copper or Icefield zones would augment the Sulphurets resource and reduce the amount of waste rock. The property holds many challenges; the four mineralized

areas – (1) Kerr, (2) Sulphurets-Main Copper-Icefields, (3) North Mitchell-Snowfields and (4) Iron Cap lie on three separate ice-capped mountain ridges separated by deep valleys occupied by glaciers, and span a distance of 10 km.



Figure 2.13. Falconbridge geologists review core from the Icefield zone, located on the distant skyline flanking the Sulphurets Gold zone and Main Copper zone, on the cliff face.

At the **RDN** property, Equity Engineering Ltd conducted geological work and supervised a six-hole (1470 m) drill program on behalf of Northgate Minerals Corporation. The property (MINFILE 104G 144) is located 40 km north of the Eskay Creek mine or 25 km west of Bob Quinn. Rock strata and mineral deposit setting on the RDN property are comparable to the Eskay Creek deposit, serving to attract gold explorers for many years (see *EMBC-2001*, page 65-71). Work in 2005 was divided between the RTB silver showing discovered in 2004, and the Arctic grid where soils are anomalous in Eskay indicator elements and flow-banded rhyolite was recently dated at 176.5 Ma, correlative with the Eskay Creek deposit. Mineralization in the RTB zone is related to brecciation and silicification of well-bedded sedimentary strata (Figure 2.14). Surface sampling returned an assay of 129.2 g/t silver and 0.16% zinc across 3.3 metres. Results of the drill program were not released but Northgate stated its intent to fund exploration of the Arctic grid area in 2006.

Roca Mines Inc carried out a 700 km airborne EM and magnetic survey and drilled 4 holes totaling 2200 metres on the **Foremore** property (MINFILE 104G 148). Foremore is located 40 km west of Bob Quinn on Highway 37. Drilling continued exploration of Devonian-Mississippian felsic volcanic rocks in upper More Creek valley for a massive sulphide deposit. Multiple massive sulphide horizons, each about 1 metre wide and of modest grade, were intersected in 2004 holes. Similar results were obtained in the current drilling (J. Mirko, pers. comm.).

Heritage Explorations Ltd carried out an 11 hole (2293 m) drilling campaign on its **Eskay** property to explore geological targets and EM anomalies detected by its airborne survey in 2004. Heritage holds extensive claims surrounding the Eskay Creek mine. A hole in the

TV zone (MINFILE 104B 385) penetrated mudstone underlain by brecciated and sericitized dacite, with stringers of pyrrhotite. Drilling also tested the **Bonsai** showing (MINFILE 104B 383), where massive pyrite occurs in sub-volcanic rhyolite. No results were available.



Figure 2.14. RTB zone showing preservation of sedimentary bedding in pervasive silicification.

On the **Corey** property, Kenrich-Eskay Mining Corporation continued systematic geological mapping, geochemical prospecting and drilling focused on rhyolite and mudstone horizons on strike 10 km south of the Eskay Creek gold and silver-rich VMS deposit. Helicopter-supported geologic work located new bodies of rhyolite (Figure 2.15). Forty-four holes (6900 metres) were drilled that tested the Smitty and Cumberland (MINFILE 104B 011) massive sulphide showings, the C-10 zone (MINFILE 104B 355), an area of quartz-sericite-pyrite alteration, and other Eskay-VMS targets. The Smitty occurrence was discovered in 2004 on the heavily timbered east slope of the South Unuk river valley; C-10 is located at sub-alpine elevation on Mt. Madge.



Figure 2.15. Corey property, helicopter landing pad near the Smitty showing. Sean McKinley discoverer of the showing.

At **Newmont Lake**, 30 km southeast of Galore Creek, Romios Gold Resources compiled exploration data, completed airborne magnetic and 3-dimensional IP surveys, and drilled one hole. The company acquired the adjacent Seagold claims from Roca Mines Inc. The

consolidated Newmont Lake property is underlain by northeast faults that preserve well-mineralized early Mesozoic volcanic and intrusive rocks in a 3-km wide graben within Paleozoic Stikine Assemblage. Considerable prior exploration was done under fragmented ownership. The Northwest (or McClymont zone, MINFILE 104B 281) is described as a 'retrograde copper-gold skarn' that was explored by more than 16 000 metres of drilling between 1987 and 1990. In the same period, different operators explored the Ken (MINFILE 104B 027) and Camp (MINFILE 104B 126) copper-gold zones, respectively located 4 km north and 3.5 km southeast of the Northwest zone. Drilling amounted to 456 metres and 1339 metres, respectively in the two zones. The mineral targets in the Newmont Lake graben are alkalic porphyry copper-gold and related skarn deposits. Romios completed one drillhole to a depth of 250 metres in the Camp zone.

Goldrea Resources Corporation performed a 20 km IP survey on the **BX** claims located 20 km west of Eskay Creek. Gold occurs in skarn and vein zones associated with the early Jurassic Lehto batholith of granodiorite to syenite composition.

STEWART NORTH TO GRANDUC

Bell Resources Corporation began a reappraisal of the **Granduc** deposit (MINFILE 104B 021), 40 km north of Stewart, dormant since 1982 when the underground copper mine closed. Granduc is a volcanogenic massive sulphide deposit with a total mineral inventory of 29.03 million tonnes grading 1.83% copper, which includes 15.4 million tonnes of production (Bell Resources website). The copper deposit occurs near the top of the Hazelton Group, at the stratigraphic contact between mafic pillow lava and tuff with overlying sedimentary rocks that include chert, argillite and tuff. Principal ore minerals are pyrite, chalcopyrite, pyrrhotite, magnetite and lesser sphalerite. The mineral sequence has been interpreted as a sulphide facies banded iron formation. Bell Resources compiled historic data, commissioned a 1200 km airborne EM and magnetic survey and drilled 5 holes (2090 m). Also, Bell Resources acquired the Leduc claims from Teuton Resources Corp Drilling targeted the southerly extension of the Granduc deposit under the South Leduc glacier, an area made more accessible by continued ablation of the icefield. The ore zone was found to extend 200 m south and 200 m down dip from previously mined areas. Significant intersections include 2.21% copper over a true thickness of 7.6 m in 2005-1, 2.57% copper over a true thickness of 7.8 m in 2005-4 and 2.13% copper over a true thickness of 8.1 m in 2005-5.

Tenajon Resources Corporation undertook surface and underground diamond drilling at the closed **Summit Lake** (Scottie) gold mine (MINFILE 104B 034). Gold occurs in a series of en echelon quartz-pyrrhotite-pyrite-calcite veins near the margin of the Summit Lake granodiorite stock. Nineteen holes collared underground

tested three of these veins; the M zone east and west of previous mining and the N and L zones. Intercepts ranged between 3.5 g/t gold and 24.6 g/t gold over widths of 0.5 to 8 metres. Surface drilling (16 holes, 639 m) tested the Bend (MINFILE 104B 132), Blueberry (MINFILE 104B 133) and Road veins, and returned intercepts of 10 to 20 g/t gold over true widths of 1 to 2 metres. The Summit Lake mine closed in 1984 due to high maintenance cost associated with the access road following closure of the nearby Granduc copper mine. It produced 183 000 tonnes of ore at an average grade of 16.2 g/t gold and, at shutdown, geological resources were estimated at 120 000 tonnes at an average grade of 19.1 g/t gold (prior to NI 43-101).

At the **Tide** property (MINFILE 104B 129), 36 km north of Stewart, Serengeti Resources Inc completed an airborne EM and magnetic survey (315 km), geological and geochemical work, and drilled eight holes (967 m). Four holes in the bulk-tonnage 36 zone extended gold mineralization along strike in both directions and to depth. Hole TIDE05-07 intersected 0.74 g/t gold over 55.7 m and hole TIDE05-08 intersected 0.72 g/t gold over 121.7 m. Soil sampling increased the gold-arsenic-antimony anomaly coincident with the 36 zone to an area of 0.5 by 2.1 km. The 36 zone is an east-west fracture system mineralized with pyrite, arsenopyrite and lesser pyrrhotite. The volcanic host rocks belong to the Hazelton Group and are intruded by a 200 to 1000 metre wide hornblende-feldspar porphyry sill complex, an offshoot of the Summit Lake stock. Four holes tested the 52 zone, which yielded spectacular gold assays from surface sampling in 2004. Drilling, combined with additional surface work, show gold grade is highly variable. The best drill intercept was 6.24 g/t gold and 8.8 g/t silver over 0.59 m.

Pinnacle Mines Ltd conducted a program of trenching and 47 drillholes on the **Silver Coin** property (MINFILE 104B 150), 24 km northwest of Stewart, under an agreement with Mountain Boy Minerals Ltd. The property includes the Kansas claim that was acquired from Tenajon Resources Corp. Work focused on the Perseverance zone, which is reported to be 600 m long, 20 to 30 m wide and has been followed 300 m down dip. Intersections in the Perseverance zone range from 1.97 g/t gold over 36.6 m in DDH-2005-48 up to 47.4 g/t gold over 9.15 m in DDH-2005-65. True widths are not reported. Previous operators identified five irregular vein-stockwork and breccia zones on the property (also known as Silver Butte) that contain gold, silver and base metals. Mining in the 35 zone by Westmin Resources Ltd in 1991 produced 105 000 tonnes of ore grading 7.86 g/t gold and 23.4 g/t silver. In 1995 (prior to NI 43-101) Westmin calculated resources in the Kansas/West Kansas (KWK) zone to be 1 774 000 tonnes grading 2.20 g/t gold based on drilling, underground development and three bulk samples.

STEWART SOUTH TO ALICE ARM

Tenajon Resources Corporation reactivated the **Ajax** molybdenum prospect (MINFILE 103P 223). Ajax is 14 km north of Alice Arm town site in the Kitsault valley. It was explored in 1965-1967 by 8100 metres of A-size core that was used to derive a resource estimate of 175 million tonnes grading 0.074% Mo. In 2005, three holes were drilled using H and N-size core. Assays from twinned holes are 14% higher in grade, and confirm the zone is open at depth. The third hole bottomed with 38 metres that graded 0.106% molybdenum. A new resource calculation is in progress that will comply with NI 43-101.

Bravo Venture Group Inc returned to the **Homestake Ridge** gold prospect (MINFILE 103P 216) to complete 1643 metres of drilling in 11 holes, intersecting significant gold-silver values. Mineralization occurs as an extensive zone of breccia and quartz veins near the contact of the Goldslide hornblende-feldspar porphyritic stock. The style of mineralization is comparable to deeper levels of the Silbak Premier deposit. The 2005 drilling at Homestake Ridge tested a northwest structure over a 300-metre length. Hole HR05-13 intersected 4.1 metres grading 7.9 g/t gold and 554.6 g/t silver and hole HR05-17 cut 7.4 metres grading 10.6 g/t gold and 21.8 g/t silver, demonstrating the range from modest to high silver grade. North of the intervening Cambria Icefield, the Goldslide intrusion is host to the Red Mountain gold deposit, adding significance to this geological setting. Late in 2005, Copper Ridge Explorations Inc acquired the **Willoughby** (MINFILE 103P 006) gold prospect located east of the Cambria Icefield, where mineralization is also related to hornblende feldspar porphyry, possibly a continuation of the Goldslide body.

Sabina Silver Corporation acquired the **Del Norte** property 34 km east of Stewart from Teuton Resources Corporation and drilled the K-LG gold-silver vein (MINFILE 104A 161). The quartz-calcite breccia vein contains sulphosalt minerals, pyrite, sphalerite and galena. Ten holes were completed along the southern 500 metres of the 1.2 kilometre-long vein. Drilling between 2002 and 2004 indicates the vein is usually less than 1 metre thick, but a 15.5 metre intercept was reported in drillhole DN05-02 that assayed 6.58 g/t gold and 350 g/t silver. True thickness of the intersection is not known. Late in 2005, Canasia Industries Corp struck an agreement with Teuton Resources Corporation on the **Clone** gold prospect (MINFILE 103P 251).

A diamond-drilling program was carried out on the **Poly** claims, 42 kilometres northeast of Stewart, by Lateegra Resources Corp and Cypress Development Corp. Seven holes totaling 908 metres tested a series of gold and silver-bearing veins, associated base metal sulphides and related IP anomalies. No significant assays were reported.

TERRACE-PRINCE RUPERT AREA

Trade Wind Ventures Inc continued to explore the **Dardanelle** prospect (MINFILE 103I 107), a small past producer of gold ore located on the north side of the Copper River. On the access road from Highway 16 near Terrace, a bridge required replacement following winter storms. Excavator trenching along 650 metres of strike length exposed quartz veins, developed discontinuously along both margins of an aplite dike. Prospecting further upslope and along a strike of 070° found that aplite and vein float extends for a total distance of 2000 metres (A. Burton, pers. comm.). The aplite is 2 to 6 metres wide and dips steeply northwest; quartz veins are up to 2 metres wide but averages about 1 metre in an adit. The adit, driven in the 1930s along the footwall quartz vein at 190-metre elevation, displays a well-banded vein; the bands consist of thin seams of sericite-chlorite and sulphide minerals. Five holes tested the vein system 200 to 500 metres east of the portal, and to an elevation of 360 metres (Figure 2.16). An historic assay of 9.3 g/t gold is reported but no assays are available from current work.



Figure 2.16. Geologist Alex Burton inspects new drill core on the Dardanelle property.

Trade Wind Ventures Inc also explored the **Treasure Mountain** property (MINFILE 103I 090), 35 km east of Terrace. Hazelton Group volcanic rocks contain veins of chalcocite and bornite. Over a 5 km strike length, all but one of the known copper showings occurs near the interface between green volcanic beds and overlying red volcanic beds (A. Burton, pers. comm.). Work comprised geological mapping, hand trenching and two vertical diamond drillholes, but no results are available.

Eagle Plains Resources Ltd continued exploration for an intrusive-related gold deposit on the **Kalum** property 35 km northwest of Terrace. A series of gold-silver vein showings and soil anomalies are related to the contact of Cretaceous plutonic rocks with sedimentary rocks of the Bowser Lake Group. The company drilled four holes totaling 540 metres in the Hat zone (MINFILE 103I 173). Results were not available.

Eagle Plains Resources Ltd also drilled on the **LCR** claims located immediately north of the Kalum property, to test copper and molybdenum soil anomalies for porphyry mineralization. A partly unroofed body of quartz monzonite underlies the claims and a satellite stock is interpreted from magnetic data to underlie the Shea zone, 1.5 km to the east. The Shea occurrence consists of pyrrhotite, pyrite and chalcopyrite developed in fractured hornfels greywacke. At the Macex showing (MINFILE 103I 021), a quartz vein stockwork, sparsely mineralized with chalcopyrite and molybdenite, is developed in the intrusion and in adjacent siltstone and greywacke. Twenty holes were completed in the various targets, for a total of 2428 metres. No assays have been reported.

Cross Lake Minerals Ltd began a drill program in December at the past-producing gold mine on **Porcher Island** (MINFILE 103J 017), located 35 km southwest of Prince Rupert. Four to five holes are planned in the AT zone.

The **Carlson** claim group, 25 km north of Terrace, covers an occurrence of molybdenite and chalcopyrite in a quartz vein at the margin of a granite dike. It is located near MINFILE 103I 045 but is thought to be a separate mineral occurrence. Gary Kurz and Gary Bysouth drilled one core hole.

BC Moly Ltd acquired four molybdenum properties in the Terrace area. Preliminary fieldwork was conducted at **Molybdenum Creek** (MINFILE 103I 016), 10 km north of Terrace.

SMITHERS-HAZELTON AREA

Blue Pearl Mining Ltd optioned the **Davidson** molybdenum deposit (93L 110) from Don Davidson of Smithers. Formerly known as the Yorke-Hardy deposit after its discoverer and Glacier Gulch after its location on Hudson Bay Mountain, Blue Pearl renamed the deposit after Don Davidson who maintained the integrity of the database for 25 years. Between 1965 and 1980, the deposit was explored by 2600 metres of underground development and 58 000 metres of core drilling. This data was used by Blue Pearl to establish a NI 43-101 compliant resource (measured plus indicated) of 230 million tonnes grading 0.12% molybdenum, at a cutoff of 0.06% Mo. Blue Pearl proposes to mine higher grade ore and ship it to an existing mill with a molybdenum circuit, such as Endako or Huckleberry. Although optimal grade for this scheme is not established, the deposit contains a high-grade core of 4.89 million tonnes (measured plus indicated) averaging 0.39% Mo.

The molybdenum deposit is genetically related to a blind multiphase intrusion two kilometres within Hudson Bay Mountain. Much of the quartz-molybdenite stockwork is in older (Jurassic) volcanic and intrusive rocks, which are so strongly silicified by younger intrusions (late Cretaceous granodiorite and intrusive rhyolite) as to obscure their origin (D. Davidson, pers.

comm.). Work done on the property included re-opening the access road to the 1066-metre elevation adit and re-establishing ventilation, compressed air and electrical services underground (Figure 2.17). Baseline environmental studies required for Environmental Assessment were initiated but, at time of writing, definition of the high-grade core by a 5000-metre underground drill program had not started. Also planned, is a pilot drillhole for a new adit at about 700-metre elevation. The property is located 10 km west of Smithers.



Figure 2.17. Erecting the sign above the new doors at the 1066-level portal, Davidson molybdenum deposit.

North American Gem Inc completed geological mapping and prospecting and drilled seven core holes at the **Louise Lake** copper-gold porphyry prospect (MINFILE 93L 079) under an agreement with Firestone Ventures Inc. Previous operators identified a tabular, gently dipping mineralized zone estimated (pre NI 43-101) to contain 50 million tonnes grading 0.3% copper, 0.3 g/t gold, 0.02% molybdenum with 0.9% arsenic. The deposit is unusual in that tennantite is the principal copper mineral, occurring as disseminations and in quartz stockwork. Mineralization is developed in felsic intrusive and volcanic rocks, which are difficult to distinguish due to similar grain size and strong pyrite-sericite alteration. The volcanic strata are correlated with the Cretaceous Rocky Ridge Formation because they are intercalated with polymictic conglomerate, arkose and greywacke of the Skeena Group. The 060° trending Coal Creek fault immediately to the south separates the Cretaceous sequence from older Hazelton Group rocks. Drilling of 100-metre step-out holes tested the Main zone to the west and to depth along its 30° dip. Assay intercepts are up to 192 metres wide with copper, gold and molybdenum values broadly similar to the resource average. An updated resource estimate is anticipated. The surface program, conducted after winter drilling, identified three nearby targets to be drilled in early 2006. One target is south of the Coal Creek fault, previously thought to limit the mineral system. The Coal Creek coal deposit occurs 3 km southwest of the Louise Lake deposit and is also

scheduled for drilling in early 2006 (see Coal Projects below).

At **Lakeview** (MINFILE 93L 030), Cangold Limited began a drill program in December that was in progress during preparation of this report. The property is 10 km north of Houston. Chalcopyrite and specularite, locally massive and crudely banded, are found with pyrite and sphalerite in andesite breccia, as an apparently conformable zone 400 metres long. Epidote, minor limestone and hematitic chert also occur in the mineral horizon. Aphyric rhyolite, assigned to the Telkwa Formation (Hazelton Group) overlies the mineral horizon. Eight drillholes are planned, totaling about 800 metres in length.

Amarc Resources Ltd explored the **Natlan** claims for a porphyry copper deposit by drilling two core holes. Work in 2004 delineated a gold soil anomaly 500 metres wide by more than 1000 metres long, derived from a granodiorite stock with fracture-filling veins of auriferous arsenopyrite. Results are not available but the claims were returned to the vendor.

BABINE AREA

Pacific Booker Minerals Inc advanced the **Morrison-Hearne Hill** project by drilling 700 metres of P-size core to recover a metallurgical test sample, and a further 4 holes totaling about 1000 metres to complete resource definition. Three ore types are identified for metallurgical study; mineralized biotite feldspar porphyry, mineralized Hazelton sedimentary rocks, and fracture-filling clay-carbonate altered rock. The Morrison porphyry copper deposit (MINFILE 93M 007), located 65 km northeast of Smithers, is estimated to contain 86 892 000 tonnes grading 0.45% copper and 0.257 g/t gold, approximately 97% is classified as Measured and Indicated resources. The waste to ore ratio is 1.44. Included in the waste are 28 152 000 tonnes grading 0.278% copper and 0.123 g/t gold that would be placed on a low-grade stockpile and processed later. The suggested milling rate is 25 000 tonnes per day and capital costs are estimated at \$175.2 million. Drilling will resume early in 2006 to complete pit geotechnical drilling and to collect hydrological data that is required to complete environmental assessment.

Exploration of the **Fireweed** silver-lead-zinc prospect (MINFILE 93M 151) was revived by Argentor Resources Ltd. Fireweed is a massive and disseminated sulphide deposit that is stratabound within Skeena Group sedimentary rocks and associated with rhyolite dikes and sills. An historic resource is not compliant with NI 43-101; 580 000 tonnes grading 342 g/t silver, 1.34% lead and 2.22% zinc across an average width of 4.75 metres. Various ore deposit models have been used to explore the property, including VMS, manto and sandstone lead. Argentor performed an IP survey, in expectation of drilling in 2006. The property is near Babine Lake, 50 km northeast of Smithers.

Grizzly Diamonds Ltd began exploration of two optioned properties at **French Peak** 65 km northeast of Smithers. Geological mapping and sampling were conducted on the Ute and Rio polymetallic silver-gold-copper-lead-zinc veins (MINFILE 93M 015). Further work is planned to select drill targets.

HOUSTON-TAHTSA AREA

CJL Enterprises Ltd partnered with Lorne Spence to drill 2 core and 13 percussion holes on the **Sam** claims (MINFILE 93L 260) located 4 km west of the closed Equity Silver mine. The target is an epithermal silver-gold-copper deposit like Equity Silver. Recently the felsic pyroclastic rocks at Equity Silver were dated at 113.5 Ma (D. MacIntyre, pers. comm.), which correlates them to the Rocky Ridge Formation, a sequence of mainly subaerial volcanic rocks. The two core holes at Sam penetrated a sequence of feldspar-phyric andesite, which may correlate with the Volcanic Flow division at Equity, underlain by polymictic volcanic cobble conglomerate (the Coarse Clastic division at Equity) with intercalated felsic pyroclastic rocks. The latter exhibit weakly developed alteration similar to that associated with the Equity Silver deposit.

At **CR** (MINFILE 93L 269), 15 km south of Houston, Manson Creek Resources Ltd drilled 8 holes (1580 m) to explore below stockwork-mineralization uncovered by trenching in 2004 (Figure 2.18). Two intrusive phases are present; a medium grained biotite-hornblende granodiorite and an apparently older quartz-porphyry rhyolite. These cut chloritic andesite and volcanic conglomerate of the Telkwa Formation. In the granodiorite, mafic minerals and feldspar are altered to sericite; feldspars appear pale green. Biotite hornfels is evident in the andesite. A pyrite-chalcopyrite-potassium feldspar stockwork is developed in the granodiorite whereas the rhyolite hosts a quartz-molybdenite stockwork. Best examples of the two styles of mineralization are hole 05CR03, which intersected 0.51% copper, 0.016% molybdenum over 63.6 metres, and hole 05CR07, which cut 0.086% molybdenum across 3.9 metres of quartz porphyry. The mineralized zone is 900 metres long by 100 to 180 metres wide and open to the west. Continued drilling is anticipated in 2006.

Aumega Discoveries Ltd explored the **Poplar** porphyry copper-molybdenum deposit (MINFILE 93L 239), 45 km south of Houston. Prior to NI 43-101, Utah Mines Ltd calculated in a full feasibility report an indicated resource of 196 million tonnes grading 0.37% copper and 0.01% molybdenum. Mineralization is related to a Bulkley granodiorite pluton, the Canyon Creek stock. Work in 2005 comprised approximately 3000 metres of diamond drilling divided between the Canyon Creek zone and the unexplored China Creek stock, 3 km to the east. Results are not available at time of writing.



Figure 2.18. Regan Chernish, president of Manson Creek Resources Ltd, examines copper-molybdenum mineralization in a trench on the CR property.

Goldsource Mines Inc drilled 4 holes totaling 595 metres on the **Rox** epithermal gold-silver property, to test coincident IP and soil geochemical anomalies. The claims are 70 km south of Houston. The holes intersected narrow quartz-carbonate veins containing base metal sulphide minerals with low gold and silver values.

At the **Seel** property (MINFILE 93E 105), Gold Reach Resources Ltd concluded its initial drill program in March and began a second program in December 2005. The claims are 110 km south of Houston, and just 7 km from the Huckleberry copper mine. Between February and March 2005, eight holes were drilled totaling 1740 m. Significant porphyry-style mineralization was intersected in several holes. Hole S05-08, the best hole of the first program, intersected 0.44% copper and 0.46 g/t gold over 102 metres. A Bulkley granodiorite stock with disseminated pyrite and very fine chalcopyrite is overprinted by a quartz stockwork locally containing chalcopyrite and magnetite (Figure 2.19). A 44 km three-dimensional IP and magnetic survey was carried out to provide targets for more exploration drilling. An 18-hole, 4000-metre drilling program began in December.



Figure 2.19. Geologists Hans Smit and Peter Daubney log core from the Seel porphyry copper property.

New Cantech Ventures Inc reactivated exploration of the **Lucky Ship** molybdenum prospect (MINFILE 93L 053), located near the Nanika River 65 km southwest of Houston. Work comprised construction of a 1.3 km road to allow highway vehicles to access the property from current logging roads, a 31-kilometre IP and magnetic survey, and 25 drillholes totaling 3804 metres. Amax Exploration Inc explored Lucky Ship between 1963 and 1968 and outlined an open-pit resource of 18.1 million tonnes grading 0.095% molybdenum (Figure 2.20). Mineralization is associated with a 150-metre diameter granite plug that is within a larger, irregularly shaped body of quartz-feldspar porphyritic rhyolite, both of Eocene age. A high silica zone and the molybdenum zone occur as concentric shells surrounding the granite plug. In plan-view, the molybdenum zone forms a donut about 35 metres wide. Current drilling confirmed the Amax model with best drill intercepts of 66 metres grading 0.14% molybdenum in LS05-31 and 187 metres grading 0.095% molybdenum in LS05-36 (Figure 2.21). Additional drilling is planned during the winter in early 2006.



Figure 2.20. Lucky Ship molybdenum property, salvaging old drill core from collapsed racks.



Figure 2.21. Lucky Ship, banded quartz-molybdenite vein.

At the **Whiting Creek** porphyry molybdenum prospect (MINFILE 93E 112) 8 km north of Huckleberry mine, Huckleberry Mines Ltd drilled seven holes to test for mineralization between the Creek and Ridge zones.

Results were not encouraging but the Ridge zone remains open to the southwest and further drilling is planned.

Torch River Resources Ltd acquired the **Red Bird** molybdenum property, 125 km south of Houston, and re-sampled historic drill core. Craigmont Mines Limited explored the Red Bird porphyry molybdenum deposit (MINFILE 93E 026) from 1965 to 1981, delineating a substantial molybdenum resource, but subsequently land within 200 m of the deposit was incorporated into Tweedsmuir Park.

COAL EXPLORATION

Fortune Minerals Limited advanced the **Klappan** anthracite coal project through requirements of the Environmental Assessment process toward approval of a 1.5 to 3 million tonne per year open pit mine. The Klappan-Groundhog coalfield is in the northern Bowser Basin, a mid to late Jurassic marine basin filled with clastic sediments that culminated in a deltaic environment including coal measures. Anthracite is a premium coal with the highest rank, carbon and energy content, and lowest moisture and volatile content of all coals. It can be used in steel manufacture as an ultra-low volatile PCI coal (pulverized coal injection) and in a wide variety of specialty applications including water purification, briquettes and as a metallurgical reductant. Coal resources at Klappan (MINFILE 104H 021) occur in four deposits; Lost Fox, Hobbit-Broatch, Summit and Nass, that contain 107.9 million tonnes classified as Measured, 123 million tonnes as Indicated and 2.572 billion tonnes classified as Inferred and Speculative.

Work in 2005 comprised drilling, bulk sampling, engineering, and collection of environmental and socioeconomic baseline data. Objectives of the 24-hole (3095 m) drill program were: to improve confidence in structural interpretation within the Lost Fox deposit, to test for additional reserves within and adjacent to proposed pit limits, to provide geotechnical information, to evaluate the risk of acid leaching (ARD) of contaminants from rock dumps, and to study groundwater quality and flows and the impact of pit dewatering (Figure 2.22). Transportation options include the BC Rail line (acquired in 2004 by CN Rail), which requires 94 km of new construction and additional upgrading of existing track, or 100 km of new road to connect with Highway 37 at the Bell-Irving River (at Bell II). The latter option would link Klappan to the port of Stewart, whereas the rail upgrade would result in the coal being exported via the Ridley terminal at Prince Rupert.

Forty kilometres west of Smithers, West Hawk Development Corp acquired the **Coal Creek** thermal coal deposit (MINFILE 93L 147). Drilling is planned in early 2006. Work by Crows Nest Resources Ltd from 1981-85 determined that two principal coal seams on the property occur near the base of the Lower Cretaceous Skeena Group; the lower seam is reported up to 6 metres thick.



Figure 2.22. Klappan coal project, Bill Hanson, geologist, and Bob Edzerza, camp manager, work in the core trailer.

EXPLORATION FOR INDUSTRIAL MINERALS AND GEMSTONES

Ascot Resources Ltd submitted a Project Report to the Environmental Assessment Office for its proposed **Swamp Point** aggregate mine on October 13. Swamp Point (MINFILE 1030 017) is located on the Portland Canal, 50 km south of Stewart. Included in the project is a ship-loading facility for vessels of up to 70 000 tonne (dwt) cargo capacity and associated conveyor system, so that up to 3 million tonnes of product can be shipped annually. The California market is targeted. The estimated resource is 52 million tonnes. Capital cost is estimated at US \$25 to \$40 million depending on whether mining equipment is purchased or contracted, and 20-50 people could be employed, depending on production rate. Swamp Point is a fluvial deposit; principally clean white sand that is preserved from recent stream erosion as an isolated, flat-topped bench 150 metres above sea level (Figure 2.23). The Swamp Point deposit is interpreted as the eroded remnant of a paleodelta derived from a glacial-age Donahue Creek. Either the land level was depressed 150 metres or, alternatively, a glacier in Portland Canal may have ponded glacial outwash from the Donahue valley in a lake above sea level. Earlier in the year, Ascot completed resource definition by drilling thirteen 9-inch diameter (23 cm) holes with a Becker hammer drill. A layer of peat, 1 to 3 metres thick was excavated to facilitate drill access. Organic acid derived from the peat produced an iron precipitate that cemented the top layer of sand into hardpan. The hardpan layer prevented drainage of surficial water until the large diameter percussion holes drained the swamp at Swamp Point.

Beacon Ventures Inc, a private BC company, proposes to extract 1.7 to 3.4 million tonnes of gravel annually from the **Bear River** where it enters the Portland Canal in the community of Stewart. The gravel would be sorted and loaded onto bulk marine carriers for shipment to Pacific Rim markets. Removal of gravel from the rapidly aggrading river channel will alleviate the semi-

annual flood risk to Stewart and the possible eventual washout of the bridge on Highway 37A. Freeboard at the bridge is being progressively reduced as the riverbed rises. A flood could interrupt shipment of mine products through the port of Stewart.

A private company, 24/7 Timber Limited, proposes to develop a granite rock quarry at **Tyee**, 25 km east of Prince Rupert on the Skeena River. Rock from the Ecstall hornblende quartz diorite pluton (Figure 2.24) would be used as ballast for harbour protection and in high-strength asphalt required for the port expansion in Prince Rupert. A four-hole drill program recovered 760 metres of core that was subjected to petrographic study and a broad array of test work to determine strength, resistance to salt water corrosion, stability in cement, resistance to wave action, and durability in alternating wet and dry (i.e. tidal) conditions. The company also prepared polished tiles to test the market for higher value dimension stone.



Figure 2.23. Swamp Point on the Portland Canal.

Andris Kikauka and John Ganter investigated occurrences of blue beryl (aquamarine) on two mineral properties, at **Cassiar beryl** (MINFILE 104P 024) and 15 km to the north at Harvey Lake. The claims are on the west flank of the Horseranch Range, 50 km south of Watson Lake.

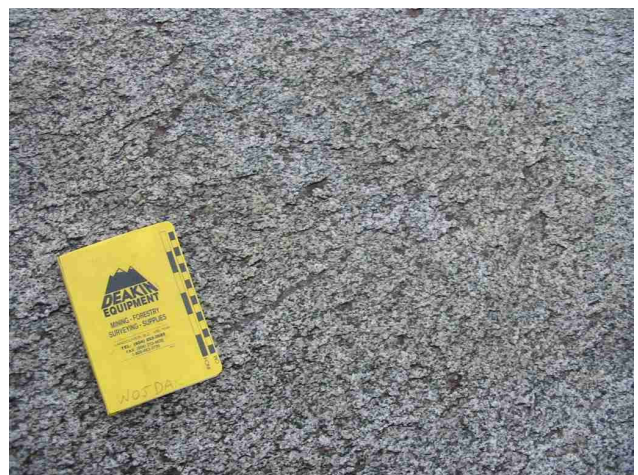


Figure 2.24. Tyee property, the Ecstall hornblende quartz diorite (or tonalite).

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