

NORTHWEST REGION

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SUMMARY

The year 2001 continued to be a difficult period for the mining industry. The value of gold, silver, copper and molybdenum metal produced from mines in the region decreased, due to a combination of lower prices and, at two mines, diminished output. Exploration activity continued at less than traditional levels. However, on a brighter note, both exploration spending and drilling increased slightly from 2000, giving cause for optimism that better times are ahead. Exploration spending in the Northwest was \$7.2 million, compared with \$6.5 million in 2000 (*see* Figure 1). Exploration drilling, an indicator of work on advanced properties, increased substantially from 31 735 metres in 2000 to 37 932 metres in 2001 (*see* Figure 2). Mine development drilling is excluded from the exploration data. Changes to the amount of land held under mineral tenure (*see* Figure 3) indicate grassroots activity is neutral, neither expanding nor declining. There were 5523 units acquired by staking, the second annual increase since the nadir in 1999, and nearly an identical 5521 units lapsed or were forfeit in the region. Skeena Mining District witnessed an increase of 1479 units held under mineral tenure while a decrease was experienced in Atlin (166 units), Liard (963 units) and Omineca (348 units) mining districts. New exploration in the Stewart-Iskut area and staking in the Ecstall massive sulphide belt account for activity in the Skeena district.

Among the mines in Northwest Region, output of gold from Eskay Creek diminished in 2001 but silver increased.

Huckleberry and Endako increased their production of copper and molybdenum respectively, but Golden Bear's gold production fell off sharply as the heap leach operation was wound up. The region now has just three operating major mines. Mine data, including production and reserves, is shown in Table 1. Barrick Gold Corporation merged with Homestake Canada Inc., owner of the Eskay Creek mine. The new owner promptly indicated its intent, subject to government regulatory approval, to increase the mining rate at Eskay Creek to augment gold and silver production. Huckleberry and Endako mines continue to operate on very

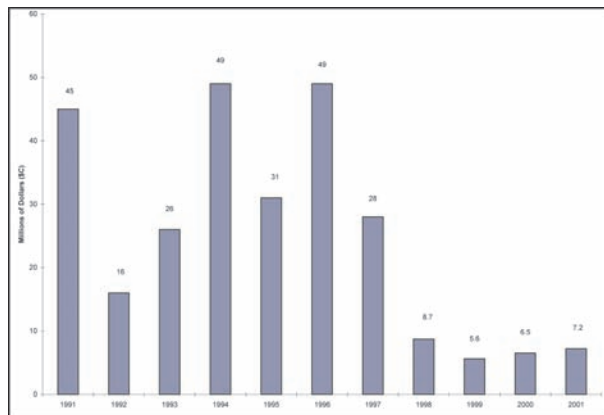


Figure 1. Mineral exploration expenditure in Northwest British Columbia.

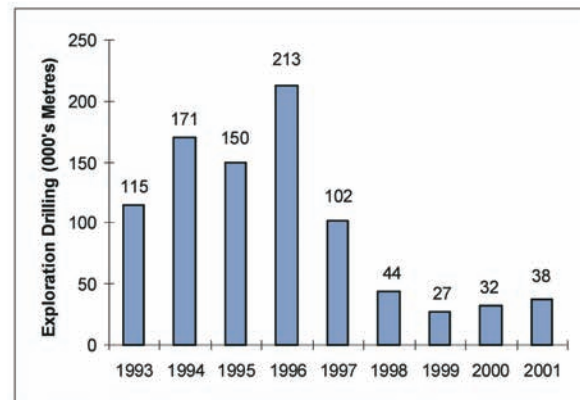


Figure 2. Exploration drilling in Northwest British Columbia.

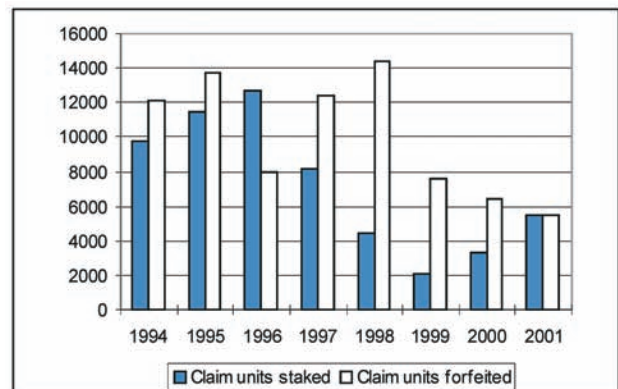


Figure 3. Claim activity summary, Northwest British Columbia.

**TABLE 1
MINE PRODUCTION IN 2001 AND RESERVES, 2002**

Mine	Operator	Employment	Production (2001)	Reserves (Jan 1, 2002)
Endako	Thompson Creek Mining, Ltd. & Nissho Iwai Moly Resources Inc.	200	5 565 499 kg Mo	Endako Pit, 55.4 million tonnes at 0.072% Mo Denak Pit, 1.5 million tonnes at 0.075% Mo Stockpile, 26.5 million tonnes at 0.047% Mo (on Oct 1, 2001)
Eskay Creek	Homestake Canada Inc.	256	9977 kg (320 784 oz) Au, 480 685 kg Ag	Shipping ore, 584 942 tonnes at 66.3 g/t Au, 3119 g/t Ag; Milling ore, 708 688 tonnes at 23.2 g/t Au, 910 g/t Ag
Golden Bear	Wheaton River Minerals Ltd.	35 (seasonal)	1039 kg (33 398 oz) Au	Heap leach reserves exhausted, mine closed
Huckleberry	Huckleberry Mines Ltd.	200	36 397 770 kg Cu, 888 380 kg Mo, 330 kg Au, 9052 kg Ag	Main Pit, 2 774 000 tonnes at 0.517% Cu, 0.014% Mo; East Pit, 51 610 000 tonnes at 0.478% Cu, 0.013% Mo
Fireside	Fireside Minerals Inc.	20 (seasonal)	10 000 tonnes of barite	Not available

Employment includes all employees and contractors as of December 2001. Reserves are from company news releases or by written correspondence with respective mine managers.

narrow margins of profitability due to depressed copper and molybdenum prices.

The most active area of exploration was the Stewart - Iskut district. The largest project in the region was the drill program conducted on the Eskay Creek mine property by Homestake Canada Inc. (now Barrick Gold Corp.). Three areas of encouraging results will lead to more drilling and possibly an increase in ore reserves. In the same district, Newmont Exploration of Canada Ltd., Teck Cominco Limited, CSS Explorations Inc. and St. Andrew Goldfields Ltd. also carried out various drilling, grassroots exploration and district compilation projects in search of a precious metal-enriched, massive sulphide deposit similar to Eskay

Creek. Pacific Booker Minerals Inc. carried out the second largest project in the region on its Morrison porphyry copper deposit in the Babine district. All major exploration projects are listed in Table 2 and their locations are shown in Figure 4.

METAL MINES

The Eskay Creek underground gold-silver mine continued to improve operations, enlarge facilities and develop new mining areas. It also increased the mining rate for the sixth successive year since it opened in 1995. Capital cost of improvements was about \$14 million (G. Biles, pers. comm.). The deposit consists of clastic sulphosalt-sulphide

**TABLE 2
MAJOR EXPLORATION PROJECTS, 2001**

Property	Operator	MINFILE	NTS	Commodity	Deposit Type	Work Done
Copper Star	Doublestar Resources Ltd.	093L 326	93L/3W	Cu, Mo	Porphyry	Access trail, 2.3 km; 9 ddh, 1580 m
Eskay Creek	Homestake Canada Inc.	104B 008	104B/9W	Au, Ag, Zn, Cu	Epithermal VMS	36 sfc ddh, 16 104 m; 21 u/g ddh, 2912 m; Development 24 sfc ddh, 4513 m; 290 u/g ddh, 11 203 m
Firestorm	Cantec Ventures Inc.		93L/1E	Precious Opal	Gemstone	Access trail, 0.7 km; Excavator trench, 200 m; Bulk sample, 20 cu m
Homestake Ridge	Teck Cominco Ltd.	103P 077,091, 165, 210, 214	103P/12E	Au, Ag, Zn, Cu	Epithermal VMS	Geol; Rock geochem
Huckleberry	Huckleberry Mines Ltd.	093E 037	93E/11E	Cu, Mo	Porphyry	IP and Mag, 14 km; Drill access, 0.5 km; 19 ddh, 2120 m.
Morrison	Pacific Booker Minerals Inc.	093M 007	93M/1W	Cu, Au	Porphyry	Drill access, 0.5 km; 39 ddh, 10 560 m
Mountain Boy	Mountain Boy Minerals Ltd.	104A 011	104A/4W	Ag, Zn, Cu	Vein	19 ddh, 630 m
PBR	Homestake Canada Inc.		104B/15E	Au, Ag	Epithermal VMS	1 ddh, 1418 m
Praxis	CSS Explorations Inc.	103O 016	103O/9E, 103P/12W	Au, Ag	Epithermal VMS	Geol; Geochem; EM (horizontal loop) and Mag 7 km
RDN	Newmont Exploration of Canada Ltd.	104G 144	104B/15E, 104G/2E	Au, Ag	Epithermal VMS	Max Min EM, 0.5 km; 13 ddh, 2255 m

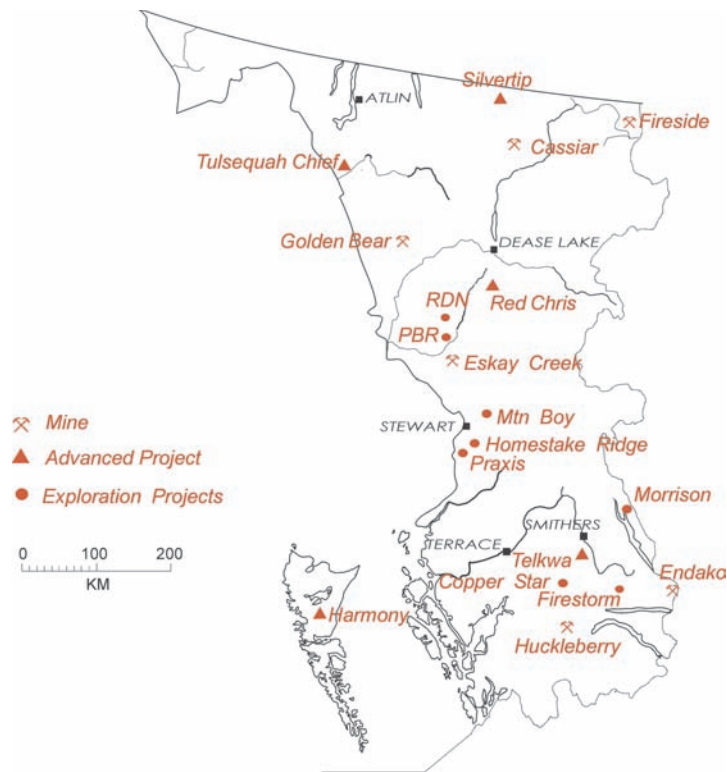


Figure 4. Location map, mines and exploration projects in northwest British Columbia, 2001.

beds (high in deleterious elements) in mudstone that is sandwiched between underlying rhyolite, which contains lower grade stringer ore, and overlying basalt. All these rocks are of middle Jurassic age. Ownership of the mine changed on December 14, 2001 when shareholders of Homestake Mining Company voted to merge with Barrick Gold Corporation, formally completing an arrangement announced on June 25, 2001.

Eskay Creek produced 109 949 tonnes of direct shipping ore in 2001 with a grade of 71.5 g/t gold and 3449 g/t silver. The mill treated 98 080 tonnes grading 32.3 g/t gold and 1301 g/t silver. Mill recoveries were 93.1% for gold and 96.3% for silver. Total gold recovery, including losses from smelter ore, was 89.8%. About fifty percent of the extraordinarily rich 21B stratiform deposit has been mined and an increasing amount of ore now comes from smaller and lower grade stopes. This led to reduced gold production in 2001 but pushed silver production to record levels (see Table 1). Gold equivalent production cost increased from \$US 19 to \$US 49 per ounce as a result of the slight reduction in gold output and lower silver prices which resulted in lower dollar credits against production cost. The company intends to increase production of direct shipping ore to 300 tonnes per day (tpd) for the first six months of 2002, and then to 370 tpd. Planned mill throughput in 2002 is 300 tpd but an increase to 360 tpd is being considered for future years. Synchronized depletion of the two ore types is an important consideration in maximizing mine life and extraction of the resource. Some lower grade mill ore may not be

economically viable without the concurrent cash flow generated from direct shipping ore.

Construction of a tailings pipeline to Tom MacKay Lake that began in 2000 was completed and use of the pipeline started in the fall of 2001. Considerable commissioning difficulties were encountered with the \$5 million, state-of-the-art twin pipeline with its sophisticated leak detection system. Inaccurate bathymetry data for Tom MacKay Lake resulted in the outfall structure being ineffective at delivering a de-aerated tailings slurry to the lake bottom. This eventually led to blockage of the outfall line in the lake. The problems were corrected and the line resumed operation in mid-November with tailings dispersed underwater into the 42 metre deep lake. Waste rock continues to be trucked to Albino Lake for subaqueous disposal. On the mine site, the camp was expanded to provide rooms for 204 people. All level ground at the mine site is now closely utilized (Photo 1).

Underground, 5 ramp, a descending spiral to access ore in the NEX zone, was driven northerly to the 525 metre elevation. A drift into the hangingwall at the 490 metre elevation will facilitate more effective exploration drilling than is possible from surface to find and delineate the small, structurally dismembered lenses of rich NEX zone ore. Surface drill holes are long and difficult to complete (Photo 2). Due to high levels of carbon dioxide gas in mine workings below about the 650 metre elevation in the NEX zone, the workings are continuously ventilated for miner safety. The footwall 21C zone was accessed by a southwesterly extension of 2 ramp. Trial mining of the 21C zone gave margin-



Photo 1. Eskay Creek mine surface facilities including (from left to right) living quarters, warehouse, office/mine dry, mill (largest building) and two direct-shipping ore sheds (foreground).

ally economic results because of costs related to difficult ground conditions. Alternative mining methods are being considered to determine if economics of this zone can be improved.

Exploration expenditure at Eskay Creek made it the largest project in the region. The total of all drilling at Eskay Creek amounted to 34 732 metres, of which 19 016 metres is classed as exploration and included in Figure 2. The balance, 15 716 metres, is classed as mine development drilling. Surface and underground exploration holes were directed to a variety of bedded and footwall stringer zone targets. Channel-filling NEX lenses present small exploration targets, most are just 15-25 metres wide and 5-10 metres thick on a 5-10° north plunge line (J. Rogers, pers. comm.). The final hole of the 2001 surface program, 100 metres north of known mineralization, returned an intersection of 50 g/t Au equivalent over 17 metres. It may prove to be another NEX ore lens. In addition to the NEX zone, deep holes were drilled into the West Limb of the Eskay anticline, also in search of bedded ore in the contact mudstone.

Office review of previous drill results defined the primary footwall target of the 2001 program as the area where the footwall dacite is cut by the important Pumphouse fault (I. Dunlop, pers. comm.). The enigmatic Pumphouse fault, which may have hundreds of metres of right lateral displacement, is interpreted to mark the east side of the graben that contains the 21 zone deposits and also to have localized discharges of hydrothermal fluids (E. Masarsky, pers. comm.). Where the Pumphouse fault crosses an amygdaloidal horizon at the top of the footwall dacite, drill holes encountered semi-massive pyrite with significant gold grades. The area will be explored further in 2002. The felsite bluffs, subvolcanic feeders of the footwall rhyolite and long known to contain sporadic gold and base metals, were drill tested for near-surface mill ore to replace the nearly depleted footwall 109 zone. Results were disappointing. Lastly, development drilling in the 21C zone inadvertently discovered a new mineralized area, named the



Photo 2. Exploration holes in the NEX zone are routinely drilled to 1500 metres. A truck departs the minesite carrying ore containing about \$250 000 in gold and silver, destined for the DOWA or Noranda smelters.

Water Tower zone. It appears to be controlled by a splay of the Andesite Creek fault (I. Dunlop, pers. comm.), that delineates the western boundary of the 21 zone trough. Drill intercepts are up to 15 g/t Au over 7.5 metres with negligible amounts of silver or deleterious elements. This metal signature is typical of footwall mineralization. Although little of the ore mined in 2001 was replaced by new reserves, the three areas described - the deep NEX, footwall dacite and Water Tower zone - give promise for exploration success in 2002.

Endako is a porphyry molybdenum deposit within an early Cretaceous granite batholith. At the Endako open pit mine, molybdenum production (Table 1) increased as the in-pit crusher, which was installed late in 2000, operated efficiently to deliver ore to the mill. The mill treated 9 468 492 tonnes of ore containing 0.0753% Mo. Mill recovery averaged 78.0%. Exceptionally low costs, achieved with the in-pit crusher and by deferred stripping, were needed to maintain the operation because the historically low molybdenum price continued throughout the year. Power cost deferrals negotiated by the B.C. Job Protection Commission were in effect during 2001 but expire in January 2002.

A decision to resume mining waste rock from the south wall of the Endako pit is anticipated in 2002. A 10 000 tonne rock fall on the south wall of the pit resulted from a wedge failure caused by the intersection of the South Basalt fault with a molybdenite-gouge vein swarm that dips gently northward, into the pit. In the previous year, a 30 000 tonne fall happened near the same place along the South Basalt fault. The new rock fall was removed as part of planned mining of the South Ramp because the in-pit crusher obviated need for the ramp. Improved drainage at the crest of the south wall is expected to guard against future failures. Five exploration holes cored in December tested both an historic drill intercept and unexplained molybdenum soil and water anomalies. Two holes 1000 metres southeast of the Endako pit encountered pyritic quartz monzonite similar to the south margin of the Endako pit. Five to seven hundred metres northwest of the Endako Pit, where molybdenum was intersected in a percussion hole, two of three holes en-

countered encouraging geological conditions and molybdenum mineralization. The best intercept was 0.079% Mo over 3 metres. Both areas may receive further drilling.

Huckleberry is a porphyry copper deposit that is related to a late Cretaceous Bulkely intrusion. Mineralization developed mainly in hornfelsed volcanic rocks adjacent to the intrusion. The Huckleberry open pit mine increased copper production by some 9% during 2001 through a combination of higher head grades and improved mill throughput. The mill treated 7 415 900 tonnes of ore at an average grade of 0.522% Cu. The milling rate averaged 20 400 dry tonnes per day. Operating costs were \$C 0.586 per pound and capital costs were \$C 0.121 per pound. Waste removal in the Main pit amounted to 3.8 million tonnes. Mining of the Main pit is advanced and is scheduled for completion early in 2002. Pre-stripping of overburden and waste rock for the second phase of the East pit began in the summer. A total of 3.2 million tonnes of non-acid generating granodiorite, that contains minor copper and molybdenum, was quarried immediately west of the Main pit and used to raise the elevation of the tailings dam. Northerly faults along the granodiorite contact, that are sub-parallel to the west wall of the Main pit, caused a minor pit-wall stability problem.

As part of a pit optimization study, three mine definition holes were drilled on the east margin of the East pit, to follow-up on an ore grade intercept that fell outside the designed pit. Definition drilling also tested two previous ore grade intercepts near the Main pit. To the northwest, three holes were drilled in the 225 zone and, to the northeast, four holes were put into the 227 zone. Although copper mineralization was intersected, the indicated tonnage was insufficient to justify modifying the mine plan for the Main pit (C. Craig, pers. comm.). Three exploration holes tested the 256 zone, an area of supergene mineralization southeast of the East pit. Assays from a prior drill hole reported 0.8% Cu over 16 metres, but the new holes returned lower grades over shorter intervals. An IP survey was also conducted along the trend of the ore-controlling 105 fault east of the East pit, but no significant anomaly was detected. As well, mapping of limited outcrop disclosed minimal alteration, so no drilling was done. Six core holes west of the tailings impoundment area explored a till-covered area for the source of copper-mineralized granodiorite cobbles. The program was unsuccessful, and mineralized material may have been transported from the Main zone by west-flowing glacial ice.

The Golden Bear gold deposit is a structurally controlled siliceous replacement within dolomitized and carbonaceous limestone, and is characterized by an absence of veining or visible sulphide minerals. Wheaton River Minerals Ltd. concluded heap-leach mine operations in 2001 and began to decommission and reclaim the site. In 2001 gold was produced at a cost of about \$US 200 per ounce, but over the five year life span of the heap leach operations Golden Bear produced 8250 kgm (265 000 ounces) of gold at an average cost of \$US 170 per ounce. The operation returned \$43 million in cash flow, which made Golden Bear the most successful heap leach mine in Canada.

INDUSTRIAL MINERALS AND GEMSTONES

Fireside Minerals Limited mined 15 000 tonnes of barite ore from the East and West Bear pits on the Fireside property (94M 003), which is 125 km east of Watson Lake. Crushing and sorting by jigs resulted in recovery of 10 000 tonnes of barite. The product was trucked to Watson Lake for grinding and bagging, and then stockpiled for sale into the western Canadian oil and gas drilling market. Although the Fireside property was idle in 2000, 2001 production was comparable on a seasonal basis to that in 1998 and 1999.

Nephrite jade was mined from three properties in the Turnagain River area east of Dease Lake. The Jade West Group shipped 100 tonnes from the Polar deposit (104I 083) near Serpentine Lake and 130 tonnes from Kutcho Creek (104I 078). Mining in the Polar quarry uncovered an abrupt thickening of the 0.5 metre thick jade seam and a large block of exceptional quality was recovered. Reputed to be the best ever produced in British Columbia the 18 tonne piece, named Polar Pride, is valued at \$US 1 million (K. Makepeace, pers. comm.) but has not been sold, awaiting a special single-piece project. Jedway Enterprises shipped about 60 tonnes of jade from the Blue J claims near Kutcho Creek, and a small amount from the Cassiar waste dump.

The remains of the Cassiar chrysotile asbestos mill, scene of a disastrous fire late in 2000, were cleaned up. An insurance claim was settled, but Cassiar Mines & Metals has not been able to undertake reconstruction and hence the future of the mine remains uncertain.

Cantec Ventures Inc. acquired an interest in the Firestorm precious opal prospect from Dennis Schaefer of Burns Lake. Common and precious opal are developed in boulders of highly vesiculated Tertiary basalt near Maxan Creek, 20 km west of Burns Lake. One stone recovered by Mr. Schaefer has an appraised value of \$Cdn 11 000 (\$Cdn 4000 estimated actual value). Cantec excavated a series of trenches to determine the relationship between the opal-bearing boulders and underlying bedrock, and to collect a bulk sample. In the trenches, opalized boulders are seen to be disaggregated bedrock (talus or regolith) that directly overlies similar bedrock, and are covered by a thin veneer of glacial till. Opal was recovered from 20 cubic metres of excavated material by washing, screening and hand sorting. Evaluation of the precious opal is ongoing. A canyon exposure near the trenches shows that the basalt comprises a series of vesicular flows and flow breccias, underlain by a rhyolite ignimbrite that is evidently the source of the silica that is leached and redeposited in the basalt (*see* Exploration and Mining in British Columbia - 2001, Part B).

At Whitesail Opal (93E 120), 10 km south of Huckleberry mine, Bruce Holden and Randy Lord continued to prospect for precious opal. Agate and opal mainly replace the matrix of Tertiary basalt breccia. Forest road development has approached to within 2 kilometres of the claims and will alleviate the high cost of helicopter transportation formerly needed to access the property to extract and trans-

port the raw opal. Finished pieces are marketed in British Columbia and the western United States.

The Xeno claims (formerly Kechika Yttrium, 94L 017) cover 11 kilometres of a 20 kilometre-long belt of Paleozoic alkalic igneous rocks (intrusive and extrusive) and carbonatite that is located near the Turnagain River about 140 kilometres east of Dease Lake. Pacific Ridge Exploration Ltd. sampled three areas, mainly for rare earth elements. The RAR 5 is a carbonatite-diatreme complex that is 450 metres long and averages 25 metres in width. Chip samples across the zone contain an average of 3747 g/t total rare earth oxides, notably cerium, lanthanum and neodymium. The diatreme contains altered olivine, garnet and chromium-spinel (W. Roberts, pers. comm.) and a 10 kgm sample is being processed for possible diamond content. Results are anticipated. The RAR 3 zone, a sheared carbonatite that is 2 kilometres long and 12 metres wide, returned 2116 g/t rare earth oxides. RAR 7, the largest zone of syenite and carbonatite, measures 1000 metres by 300 metres. Abundance of rare earth elements, in particular yttrium, dysprosium and europium, vary, but grab samples taken by the company averaged 514 g/t rare earth oxides.

PLACER MINING

By Daryl Hanson, P.Eng.

Placer gold mining in the Atlin and Dease Lake areas continued at a reduced level for the second year. Many operators remain idled by the low gold price, high cost of fuel and scarcity of shallow paydirt. The number of mining projects was down slightly from the previous year at 26, and there were less than half the number of exploration projects (18) as in 2000. There were two large reclamation projects in 2001.

On Ruby Creek in the Atlin district, Ruby Gold Ltd. partnered with Pelly Construction Ltd. to implement a more aggressive mine plan. Pelly's equipment, no longer required at Golden Bear, was used to strip 160 000 cubic metres of overburden and basalt lava that cover rich paygravel in the paleochannel of Ruby Creek (Photo 3). Up to 12 workers were employed. The excavation intersected a drain tunnel, driven in 1926 in granite bedrock just below the gravel contact. The tunnel extends for 300 metres underneath the 100 000 year-old basalt and is still effective in directing groundwater away from the pit, so pumping is not required. An underground drift of the same vintage was also uncovered, but otherwise the area was not mined. The gravel is well indurated, in part by manganese oxides, and required considerable effort to disaggregate, before it could be sluiced. About 40 000 cubic metres were processed. The coarse nuggets of Ruby Creek command a substantial premium above the listed gold price. A similar stripping program is planned upstream from the Ruby Creek - Pelly joint venture by Sisters Resources Ltd. and West Coast Paving Co. Ltd. This year, Sisters Resources and West Coast sluiced 10 000 cubic metres on Wright Creek with limited success.

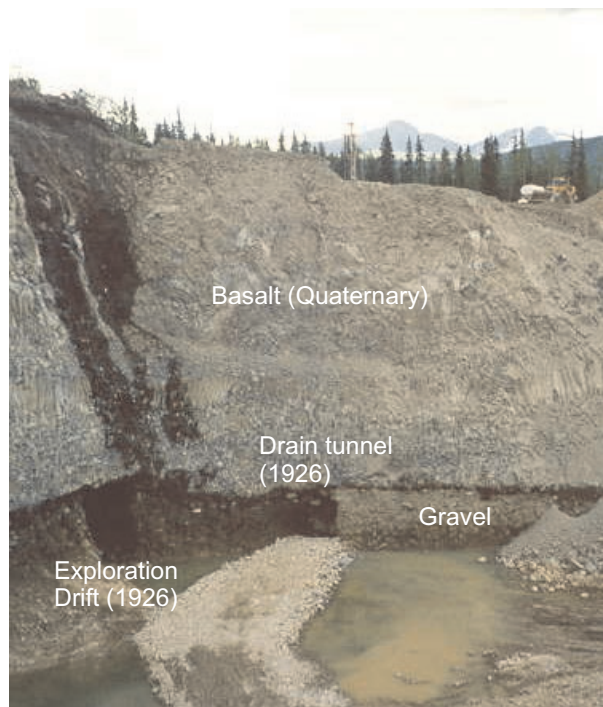


Photo 3. Rich paygravel in the old channel of Ruby Creek excavated beneath columnar-jointed basalt; two old underground drifts can be seen.

The most notable development in the Dease Lake area is increased activity on Thibert Creek, spurred by the creek's history of significant platinum yield. Taiga Ventures sluiced 25 000 cubic metres of gravel on lower Thibert Creek. Wesley Gwilliam and Trio Gold Ltd. tested further upstream on Thibert Creek and along its tributaries, Vowell and Cache creeks. Elsewhere in the Dease Lake area, Michael Swenson and Ed Asp continued systematic mining on Dease Creek and Goldpan Creek respectively.

MINERAL EXPLORATION

(Refer to Table 2 and Figure 4)

SMITHERS-HOUSTON-BABINE AREA

Pacific Booker Minerals Inc. continued to delineate the Morrison porphyry copper deposit (93M 007). The deposit is centred on an Eocene biotite-feldspar porphyritic granodiorite stock that was emplaced into mid-Jurassic sedimentary rocks of the Bowser Lake Group along the graben-bounding Morrison fault. The standards of work carried out in the 1960s are not adequate for a new feasibility study; 1960s assay samples were based on AQ core, core recovery was poor in some intervals and gold analyses were based on sample composites. In 2001, thirty-nine holes were completed, all were inclined at -45° , they were drilled on a 60 metre grid, and the program employed thin-wall NQ core (Photo 4). This "deposit appraisal" drilling is included in exploration statistics shown in Figure 2. The deposit is characterized by long intervals of uniform copper and gold grades and there are no post-ore dikes. When the new drill program is complete, which is scheduled for March 2002,



Photo 4. Pacific Booker Minerals Inc. geologist, Konstantin Lesnikov, and Tom Schroeter examine Morrison drill core.

the company will contract Kilborn Engineering to calculate an ore reserve. Pacific Booker also contracted preparation of a detailed topographic map.

Doublestar Resources Ltd. cored nine holes on the Copper Star property (93L 326, also known as Chisholm Lake and WG) under an earn-in agreement with Misty Mountain Gold Ltd. In 2000, Misty Mountain identified five IP anomalies. The largest, which is more than one kilometre in length, included a logging road exposure of porphyry copper mineralization at the contact of a (late Cretaceous) Bulkley intrusion. A hole underneath the showing intersected 0.26% Cu over 123 metres in the granodiorite stock but other holes revealed that the geology is more complex than was evident from sparse outcrop. Lithologic units are tentatively identified as Skeena Group sandstone, Endako Group mafic volcanic rocks, and highly pyritic felsic volcanic rocks that might correlate with the Cretaceous Skeena Group or with the Tertiary Ootsa Lake Group. These younger rocks are interpreted to be preserved in a fault basin down-dropped into Hazelton Group andesite. Doublestar terminated its agreement after the drill program and Misty Mountain transferred its interest to Continental Minerals Corporation, an affiliated company.

Several small programs were conducted in the Smithers-Houston-Babine area. Huckleberry Mines Ltd. completed two reconnaissance lines of IP on the Ted zone (93E 086) north of Huckleberry Mountain near Sweeney Lake. No significant anomaly was detected, consequently no drilling was done. Teck Cominco examined mid-Jurassic Hazelton Group rhyolite, that was mapped by

Diakow and Koyanagi (GSB Open File 1988-2) near Whitesail Lake. The target was a geologic environment similar to that of the Eskay Creek deposit. Telkwa Gold Corp. performed a transient EM survey over a 16 km grid on their Del Santo VMS prospect (93L 025) southeast of Smithers, but was unable to fund a planned drill program. Jim Hutter, aided by a Prospector Assistance grant, explored Golden Eagle (93L 015), a small past-producer of high-grade silver ore. Excavator trenching uncovered a new ore shoot and VLF-EM detected several parallel conductors that may represent a continuation along strike of the vein structures.

KITIMAT AREA

The British Columbia Geological Survey recently released results of a stream silt geochemistry survey of the Ecstall volcano-sedimentary pendant in the Coast Range. Prior to, and after the May data release, claims were staked on massive sulphide targets. CSS Exploration Inc. acquired the luxta claims (200 units) and Doublestar Resources Ltd. staked 80 units to surround the Bell lead-zinc showing optioned from prospectors Shawn Turford and Ralph Keefe. Turford and Keefe benefited from Prospector Assistance Grants and continued to prospect the southern continuation of the Ecstall belt. They staked the Dani claims on a base metal occurrence near Cheens Creek on Hawkesbury Island. Doublestar Resources Ltd. subsequently returned the Bell property to the owners.

STEWART-ISKUT DISTRICT

Newmont Exploration of Canada completed 13 holes in two campaigns of drilling on the RDN property (104G 144), 40 km north of Eskay Creek mine, but subsequently returned the property to Rimfire Minerals Corp. Drilling (Photo 5) tested EM conductors in search of precious metal enriched VMS mineralization similar to Eskay Creek. In the Wedge zone, silicified rhyolite was discovered that contained minor sphalerite, chalcopryrite and galena, and traces of tetrahedrite, pyrobitumen and orpiment. The best intercept was 3.7 g/t Au over 1.5 metres. The mineralized rhyo-



Photo 5. Geologists Al Montgomery, David Caulfield and Henry Awmack discuss drill results on the RDN.

lite is overlain by argillite on the overturned limb of an anticline near the Forrest-Kerr fault (A. Montgomery, M. Stammers, pers. comm.). In 1991, prior to recognition that the Wedge zone was an exhalative target, a drill hole by Noranada cut a 2 metre-wide quartz vein that assayed 101 g/t Au.

Midway between Eskay Creek and RDN, Homestake Canada Inc. (now Barrick Gold Corp.) drilled a single 1.4 km deep hole on the PBR property in an attempt to locate the Eskay Creek horizon at the base of a thick pillow basalt sequence. The hole passed through two mudstone units but did not reach the Contact Mudstone. It was abandoned when drilling exceeded its target depth. Pillow basalt extends north from the mine, apparently in a fault basin defined by the Harymel and Forrest-Kerr faults.

Teck Cominco Limited entered the search for an Eskay Creek type deposit with a mapping and sampling program on 580 claim units some 25 km southeast of Stewart. The company investigated Homestake Ridge where Salmon River Formation andesite, rhyolite and mudstone, close to the Hazelton/Bowser Lake Group transition, are intruded by a subvolcanic pluton, one of the Goldslide intrusions. The ridge is littered with trenches and short adits, dating from the 1930's, that tested innumerable gold, arsenic and mercury enriched polymetallic vein occurrences. A stratigraphically lower felsic volcanic unit in the Illiance River area was also explored (G. Evans, pers. comm.). The lower felsic horizon is also associated with a subvolcanic intrusion and a series of mineral occurrences, including Leftover (103P 047), which was interpreted as an Eskay Creek-type target in GSB Open File 1999-2.

The Praxis property, which consists of about 325 claim units, is located 25 km south of Stewart. It was explored by CSS Exploration Inc. for an epithermal massive sulphide deposit, like Eskay Creek. Geological mapping and ground EM followed up on exceptionally strong airborne EM anomalies defined by a survey in year 2000. Eskay-age rhyolite flow-domes, first recognized by a Geological Survey of Canada field crew, are underlain by pillow basalt and overlain by Salmon River pyritic mudstone. The stratigraphic units are similar to those at Eskay Creek but are in a different sequence. Silt samples from drainages that originate in the target area are anomalous in base and precious metals. Prospecting discovered a new pyrrhotite-sphalerite vein occurrence that has significant gold values (G. Hendrickson, pers. comm.).

St. Andrew Goldfields formed a strategic alliance with Dolly Varden Resources Inc. and Heritage American Resource Corporation, to explore for an Eskay Creek type precious metal deposit (G. Laing, pers. comm.). Together with new staking, the companies hold more than 800 claim units in the Stewart-Iskut area. This includes a 50% interest in the Lulu zone (104B 376) on the SIB property, and claims formerly held by Tagish Resources Limited that were acquired from the Court Bailiff. Staking near the Illiance River was in competition with Teck Cominco. An interesting prospect in the Illiance-upper Kitsault area is the Big Bulk (103P 016) where previous work found widespread copper-gold mineralization in a sub-volcanic intrusive body. St. Andrew

acquired copies of all assessment reports for the area around Eskay Creek and reports by the Mineral Deposit Research Unit, The University of British Columbia, for computer modeling to derive exploration targets. Expenditures in the area were substantial (R. Billingsley, pers. comm.) and the company appears poised to initiate a major exploration program.

Rimfire Minerals Corp. acquired the Tide property (104B 129) 40 km north of Stewart and just 1 km from the millsite of the former Granduc mine. An important feature of the property is a 2 by 3.5 kilometre gold soil anomaly that is inadequately explained, despite the presence of numerous narrow base and precious metal veins. The gold anomaly overlies the pervasively sericite-pyrite altered northern contact zone of the Summit Lake stock which intrudes coeval Hazelton Group volcanic rocks. The area was previously explored by Newmont Mining and Hemlo Gold Mines Ltd. Although small scale mineralized structures trend east-west, work by Rimfire determined that a 1.6 km north-south feature, named the Arrow fault, might be the locus of high grade mineralization.

Five kilometres north of Stewart, Lloyd Rodway drilled eleven holes on his Lloyd claims (also known as Mobile, 103P 069) to test auriferous quartz-base metal sulphide veins. Mountain Boy Minerals Ltd. completed 17 short core holes from two sites 50 metres apart to test the High Grade silver-lead-zinc-barite vein (104A 011) near American Creek, 22 km north of Stewart. The holes failed to intersect argentite and stromeyerite mineralization that was noted in underground workings dating from the 1930's. Two additional holes drilled from a third site tested copper-gold quartz veins. The company elected not to proceed with purchase of the 50% of the Mountain Boy property it does not already own.

CASSIAR-STIKINE-ATLIN AREA

Rimfire Minerals Corporation optioned the Bill property (94E 092) from prospectors Lorne Warren and John Mirko. Located near the head of the Stikine River, 140 km southeast of Dease Lake and 50 km northwest of the Toodoggone district, the Bill has been inactive since 1984. Swarms of auriferous arsenopyrite-pyrite-quartz veins, enveloped by carbonate-sericite alteration, were discovered by Cominco in 1981 during follow-up of silt geochemical anomalies. Subsequent drilling by a Cominco-Dupont joint venture yielded a best intercept of 35 g/t Au over 2 metres. Veins and attendant alteration are developed in chlorite schist over a one by two kilometre area in the core of a structural dome. They fill steep tension fractures that generally cross foliation at high angles, but also occur as foliation-parallel veins and disseminations. The Bill property, and a nearby early Jurassic quartz monzonite, lie within a 10 kilometre wide magnetic depression, which suggests that structural doming of the host rock, gold veins and carbonate-sericite alteration are all intrusion-related (M. Baknes, pers. comm.). The company re-mapped the property and compiled data to evaluate potential for both high grade and bulk tonnage targets. The latter is exemplified by

an intercept, recompiled from 1984 drill core, of 1.17 g/t Au over 149 metres.

Silvertip Mining Corporation, a subsidiary of Imperial Metals Corp., performed 10 line kilometres of AMT electromagnetic survey in the area north of the portal on the Silvertip silver-lead-zinc prospect (104O 038). They looked for evidence of mantoes in the McDame limestone or underlying calcareous sandstone of the Sandpile Formation. This is a deeper stratigraphic horizon than targeted by previous exploration, which focused on the Earn-McDame unconformity. However, no anomalies that warrant drilling were found.

Five prospecting programs were partially funded by the Prospector Assistance Program. J. Peter Ross and Egil Livgard each pursued tantalum Regional Geochemical Survey anomalies that are associated with highly evolved granites of the Surprise Lake and Glundebery batholiths respectively, in search of a greisen or pegmatite deposit. These granites comprise part of a 200 km long, east west belt of late Cretaceous plutons that intrude rocks of the Cache Creek terrane. John Hope examined ultramafic-associated PGE and gold targets including the Blue River complex, 30 km north of Cassiar, and a nickel-silica hot spring deposit related to the Nahlin fault. Near the head of the Cottonwood River 145 km southwest of Watson Lake, Robert Russell looked for VMS mineralization in quartz sericite schist of the Paleozoic Ram Creek assemblage. These strata correlate with rocks of the Yukon-Tanana terrane. Erik Ostensoe and Tom Lisle explored a porphyry copper-gold and related epithermal system near Hatchau Lake (104J 015, 021) in the Sheslay district, 40 km northwest of Telegraph Creek.

Regional geochemical survey (RGS) results from the Dease Lake map area (NTS 104J) prompted a private syndicate to stake the Zah claims on a multi-sample tantalum-rare earth element anomaly near the head of Beatty Creek. On the claims, an intense gossan is developed in Quaternary rhyolite and trachyte of the Level Mountain volcanic complex. A mercury occurrence is noted in Minfile. The same group staked two base metal anomalies in the northeast sector of the map-area, looking for a massive sulphide deposit in Paleozoic to Triassic rocks.

ENERGY PROJECTS

Exploration for coalbed methane is proceeding in coal-bearing areas of the Province that are close to markets and gas pipelines. The Telkwa coalfield contains a potential CBM resource of 130 billion cubic feet and, considering its immediate proximity to the PNG pipeline, is well located for development. Auction of CBM rights is expected within one to two years. Sherritt International Corporation became owner of coal licenses at Telkwa by way of its takeover of Luscar Coal Ltd. in February 2001, but no development of the thermal coal deposit took place. No exploration of coal or coalbed methane potential elsewhere in the region, principally the Klappan and Groundhog coalfields, is planned at this time.

Coast Mountain Hydro Corp. investigated an 80-100 megawatt, run-of-river hydroelectric development in the Iskut River canyon, 15 kilometres northwest of Eskay Creek. The site is at the confluence with Forrest-Kerr Creek where Recent eruptions of basalt lava from a cone near Volcano Creek confined and, from time to time, blocked the Iskut River. The project contemplates diverting flow from the river into a 3.3 kilometre tunnel leading to an underground powerhouse. Only 15 megawatts would be generated during low winter flow. Five holes (184 metres total) were drilled, mainly into basalt at the proposed intake site. If built, a transmission line connecting to the Provincial grid will run alongside the Eskay Creek access road and Highway 37. The transmission line could stimulate mine development in the region.

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