

KOOTENAY REGION

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SUMMARY

Exploration expenditures in the Kootenay region during 2002 are estimated at \$7.1 million, a decrease of approximately 9% from the \$7.8 million spent in 2001 (Figure 1). The 2002 total includes \$2.8 million (40%) spent on drilling for coal at, or in the vicinity of, the five producing coal mines in the Elk Valley, a drop of 41% from 2001; \$3.7 million (53%) spent on metal exploration; and \$0.5 million (7%) spent on industrial mineral exploration (Figure 2). Lowered production levels at several of the mines that resulted from protracted coal contract negotiations in the first half of the year caused the significant drop in exploration by the coal companies. In large measure this was balanced out by the resurgence in metal exploration spending in this area of the province.

An estimated 62 815 metres of drilling was carried out in the region in 2002, in all categories, a decrease of 29% from 2001 levels (Figure 1). Coal companies carried out 38 147 metres of reverse circulation drilling, a significant decrease of 50% from the amount of drilling carried out in 2001. Coal drilling comprised 61% of the total metres of drilling, down from 86% in 2001 (Figure 3). Metal exploration drilling rebounded in 2002 to 18 780 metres in 94 holes, a 161% increase from 2001 levels. It accounted for 30% of the total 2002 drilling, whereas it accounted for only 8% of the total metres drilled in 2001. An estimated 5888 metres of drilling, the remaining 9%, was carried out on industrial minerals projects, up slightly from 2001.

A total of 47 Notices of Work (NoWs) were submitted to the Kootenay Region Mines Branch office in 2002 for exploration programs on metal projects, 5 for industrial minerals projects, 6 for coal exploration programs, and 34 for placer projects. These numbers are similar to 2001 levels. The total number of metal projects worked on last peaked in 1997 at 231, and has declined since then to approximately 50 in each of the past two years (Figure 4). A total of 4445 new mineral claim units were staked in the region during 2002, down slightly from 5329 units in 2001; however, the number of forfeited mineral claims was down to 4396 from 4737 in 2001.

The increase in the price of gold from just below US\$280 at the beginning of the year to almost US\$350 by the end of 2002 refocused exploration activity toward pre-

2002 Kootenay Exploration Expenditures

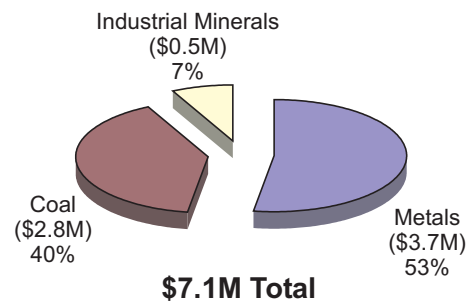


Figure 2. Exploration expenditures by commodity type.

Exploration Expenditures and Metres of Drilling

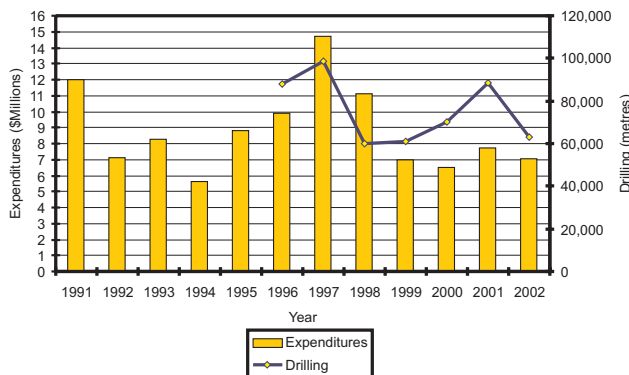


Figure 1. Exploration expenditures and metres of drilling.

2002 Kootenay Region Drilling

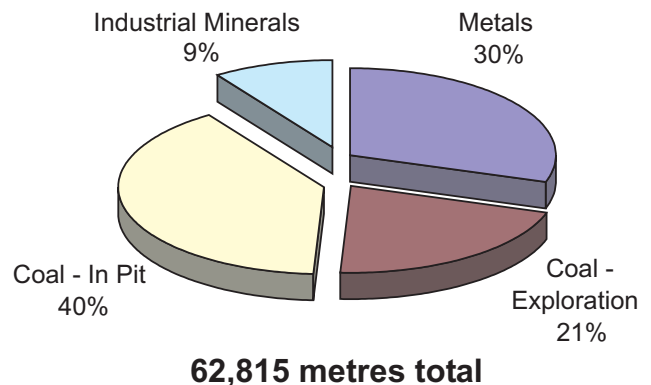


Figure 3. Drilling metres by commodity.

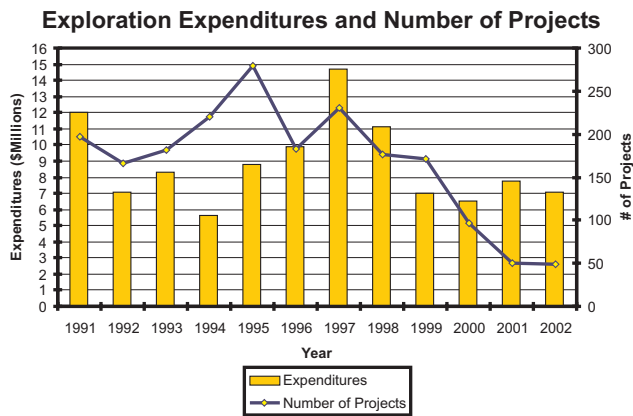


Figure 4. Exploration expenditures and number of projects.

dominantly gold-related targets. This is illustrated by Figure 5, which shows the metal exploration expenditures for the region in 2002 broken down by target deposit type.

In 2002 the Kena intrusion-related gold project in the Nelson area was again the largest metal exploration program in the region. In the fall, Sultan Minerals Inc. concluded a significant option agreement on the project with major gold miner Kinross Gold Corporation. Drilling on the Gold Mountain Zone, located in the northern portion of the Kena property, identified both low grade and high-grade gold mineralization, suggesting the potential for both bulk tonnage and smaller bonanza-grade deposits. In addition to further drilling on the Gold Mountain Zone, several other target areas on the project ground were drill-tested.

In the historical Greenwood mining camp Gold City Industries Ltd. acquired the Lexington-Lonestar and Winnipeg Golden Crown properties through option agreements; both have defined Au-Cu resources. Gold City also acquired a number of adjacent properties with high exploration potential. In addition they now have the rights to the Roberts Mill, near Greenwood, which they plan to use to process bulk samples in the short term and as a small central milling facility in the longer term. Orphan Boy Resources optioned the Willa Au-Cu-Ag deposit near Silverton in

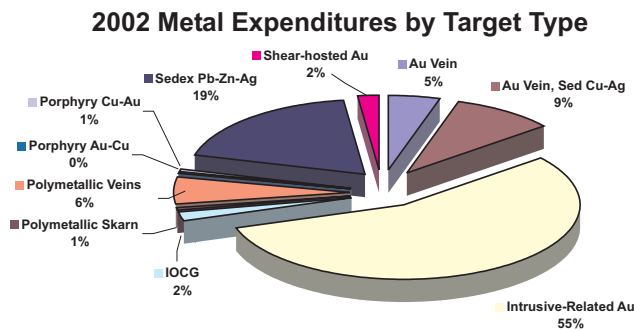


Figure 5. Metal Exploration Expenditures by Target-Type.

2002. The company is aggressively proceeding with a multifaceted feasibility study to examine the viability of underground mining the deposit and trucking the ore to their Goldstream mill complex north of Revelstoke for processing. A digital block model is being constructed, based on the significant amount of work carried out by previous operators, to facilitate mine planning and identification of near surface areas with high exploration potential.

Metal exploration in the East Kootenay area increased significantly during 2002 relative to 2001 levels. A drill program carried out by Golconda Resources Ltd. on the Lone Peak property east of Fort Steele tested for Spar Lake-type Cu-Ag mineralization and gold quartz vein mineralization. Klondike Gold Corporation carried out a campaign of deep drilling to test for Sullivan-type Pb-Zn-Ag targets in the Purcell Basin, as well as evaluating several gold targets. Late in the year Chapleau Resources Ltd. assembled a large land position covering many gold prospects in the Cranbrook area, and initial drilling on their Bar (Lookout) property intersected significant gold mineralization. To the east, in the Flathead River, area Goldrea Resources Ltd. carried out drill programs on their recently optioned Howell and Crowsnest intrusion-related Au properties.

Exploration activity on industrial minerals projects declined in the region during 2002. Crystal Graphite Corporation released results of a new resource calculation for their Black Crystal graphite project in the Slocan Valley. They also applied for a mining permit and continued to fine-tune their on-site pilot plant. Westroc Inc. carried out a drill program on their Elkhorn West project, immediately west of their Elkhorn gypsum mine southeast of Invermere that expanded gypsum resources significantly. Tiger Ridge Resources continued underground development, bulk sampling, and exploration drilling on their Jubilee Mountain barite project west of Spillimacheen.

Since the giant Sullivan Pb-Zn-Ag mine closed in December 2001, after more than a century of continuous production, there have been no operating metal mines in the Kootenay Region. Coal production in the Elk Valley was down from 2001 levels due to protracted contract negotiations during the first half of the year. A hostile takeover bid for the coal giant Fording Inc. was resolved early in 2003 with a plan to merge all of the metallurgical coal mines in the Elk Valley into a single investment vehicle. It will be called the Fording Canadian Coal Trust and will include coal export port facilities in the Vancouver area. All the major industrial mineral mines and quarries operating at the beginning of the year maintained steady production levels throughout the year; no significant change is forecast for 2003. There were no mine closures in the region during the year, and new production came from two industrial mineral quarries, the Rocky Mountain Slate quarry east of Golden, and the Winner diorite quarry in the Greenwood Camp.

EXPLORATION HIGHLIGHTS

The major metals, industrial minerals, and coal exploration projects carried out in the Kootenay Region during

2002 are listed in Table 1. These major projects involved significant levels of expenditures (i.e. >\$100,000) on exploration drilling, bulk sampling, or underground exploration work. Locations of these projects, and others that are believed to be regionally significant despite somewhat smaller programs during 2002, are shown on Figure 6. There were a total of 16 projects with reported expenditures of more than \$100,000 in the Kootenay Region this year.

METALS

Jonpol Explorations Ltd. optioned the **Ward Cu-Au** property, located approximately 15 kilometres east of Beaverdell, and carried out a two-phase exploration program during 2002. The company targeted quartz sulphide vein showings and bulk tonnage precious-base metal deposits. The property is underlain by metamorphosed

volcanics, sediments, and diorite of the Upper Paleozoic Anarchist Group, intruded by quartz diorite and related dykes of the Westkettle Pluton, one of the Middle Jurassic suite of Nelson intrusions. The property contains a number of Minfile occurrences, the best known of which is the Barnato (082ESE109) deposit with historical production from an arsenopyrite-rich quartz-sulphide vein. From 1937 to 1939 and in 1966 and 1967, 296 tonnes with an average grade of 32.8 g/t Au and 13.97 g/t Ag were produced. An initial trenching program was carried out to test areas with elevated Au-As levels in soils and coincident IP chargeability anomalies. This work was followed up in the fall with a 9-hole, 260-metre drill program concentrated on southern part of the claim block (Photo 1) with several holes drilled to the north in the vicinity of the Barnato occurrence.

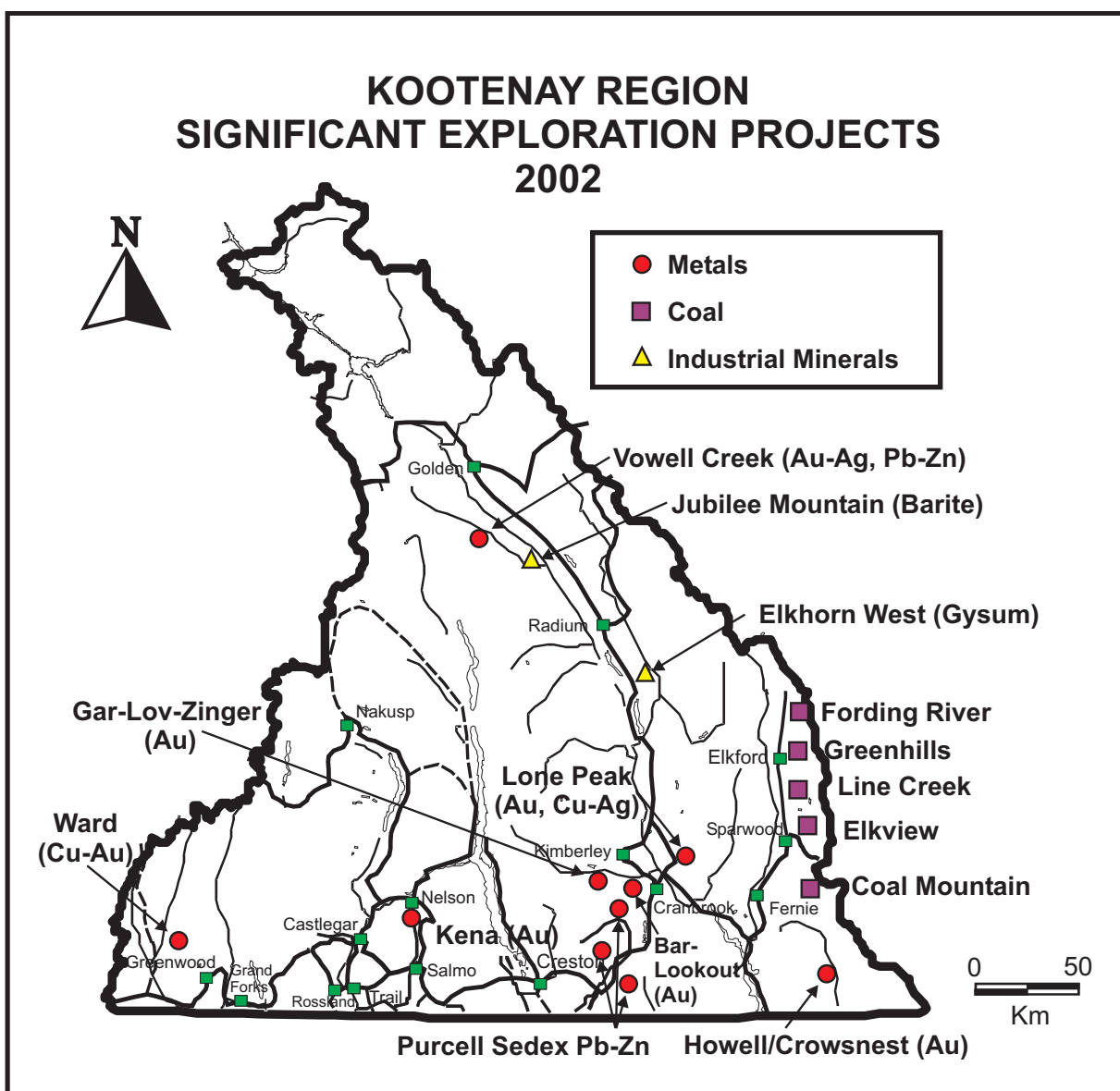


Figure 6. Significant Exploration Projects in the Kootenay Region, 2002.

TABLE 1
MAJOR EXPLORATION PROJECTS, KOOTENAY REGION, 2002

Property	Operator	MINFILE	NTS	Commod.	Deposit Type	Work Done
Bar 19 (Lookout)	Chapleau Resources Ltd.		82G/5W	Au	Intrusive-related	~800m diamond drilling in 2 holes
Coal Mountain Mine	Fording Coal Ltd.	082GSE052	82G/7E, 10E	Coal	Sedimentary	5975m RC drilling in 37 holes
Crowsnest	Goldrea Resources Corp.	082GSE070	82G/2E	Au	Intrusive-related	~610m diamond drilling in 11 holes
DA Vent	Klondike Gold Corp.	082GSW067	82G/5W	Pb, Zn, Ag	Sedex	1171m diamond drilling in 1 hole
Elkhorn West	Westroc Inc.	082JSW028; 082JSW021	82J/5W	Gypsum	Evaporite	3656m diamond drilling in 66 holes
Elkview Mine	Elkview Coal Corp.	082GNE015	82G/10W, 15W	Coal	Sedimentary	4672m RC drilling in 62 holes
Fording River Mine	Fording Coal Ltd.	082JSE009, 10, 12	82J/2W	Coal	Sedimentary	4600m RC drilling in 10 holes
Greenhills Mine	Fording Coal Ltd.	082JSE001, 5, 7	82J/2W	Coal	Sedimentary	4400m RC drilling in 32 holes
Howell	Goldrea Resources Corp.	082GSE037; 082GSE048	82G/02E	Au	Intrusive-related	328m diamond drilling in 3 holes; airborne
Jubilee Mountain	Tiger Ridge Resources	082KNE079	82K/16W	Barite	Veins, Breccias	2086m diamond drilling in 31 holes; 1000 tonne bulk sample; 55m drifting; 22m raising
Kena Gold	Sultan Minerals Inc./Kinross Gold Corp.	082FSW237, 331, 332	82F/6W	Au, Ag, Cu	Intrusive-related	~7870m diamond drilling in 39 holes; trenching; geol; gechem; geophys; airborne
Line Creek Mine	Luscar Ltd.	082GNE020, 21, 22	82G/15W, E	Coal	Sedimentary	18 470 RC drilling in 45 holes
Lone Peak	Golconda Resources Ltd.		82G/12E	Au, Cu, Ag	Veins; Sedimentary Cu-Ag	2054m diamond drilling in 8 holes; geol, pros
Ward	Jonpol Explorations Ltd.	082ESE109; 082ESE244; 082ESE111	082E/7W	Au, Cu	Veins	~460m drilling in 9 holes; trenching
West Moyie Block	Klondike Gold Corp.		82F/8E	Pb, Zn, Ag	Sedex	~1800m diamond drilling in 2 holes (1 extension)
Yahk - Cold Creek	Klondike Gold Corp.		82G/4W	Pb, Zn, Ag	Sedex	775m diamond drilling in one hole extension

Gold City Industries Ltd. completed several significant option agreements in the second half of the year for properties and facilities in the historical Greenwood mining camp. These acquisitions established the framework for their **Greenwood Gold Project**. The first major option deal was for a 100% interest in the **Lexington-Lonestar** property, which includes two deposits, eleven past producing mines, and a number of high potential mineralized zones. The Grenoble/Main Zone has a reported mineral resource of 94 923 tons grading 0.297 oz/ton (10.2 g/t) Au and 1.49% Cu (may not be National Instrument 43-101 compliant) accessed by a 300 metre decline, and the deposit is open down plunge. This mineralization comprises a structurally controlled complex of pyrite-magnetite-chalcopyrite-gold

veins closely associated with a serpentinite-dacite contact. Five other zones are known on the property that have similar characteristics to the Grenoble/Main Zone. As well, the Lonestar deposit has disseminated and stockwork Cu-Au mineralization that has supported some past production. A second significant option gained control of the **Winnipeg-Golden Crown** property, 5 kilometres north of Lexington-Lonestar. This property contains a number of Rossland-type veins with pyrrhotite>pyrite>chalcopyrite in a quartz gangue that are hosted by Paleozoic diorite, greenstone, and serpentinite. In 1990 a study indicated the presence of a mineral resource of 37 100 tons grading 0.999 oz/ton (31.07 g/t) Au (uncut) or 0.536 oz/ton (16.67 g/t) Au (cut) and 1.12% Cu (may not be National Instrument



Photo 1. Diamond drilling on the Ward Cu-Au project, Consultant Bob Gale examining core.

43-101 compliant). The mineralization is accessible via a recent 1100 metre adit as well as through historical workings, and surface trenches. Significant potential exists to expand resources in the area both down-dip and along strike, and parallel veins may exist. The company also has completed option agreements to acquire the rights to the adjacent **Zip, JD** and **Century Gold** claims. Further, Gold City acquired the Roberts Mill, located 5 kilometres south of Greenwood, which has been used in the past as a custom mill. After completing rehabilitation work and some modifications to the mill facilities, the company plans to use it to process bulk samples from the Lexington-Lonestar and Winnipeg-Golden Crown properties and, subject to completion of a positive feasibility study, ores from the properties. Gold City plans a significant drill program on the Winnipeg-Golden Crown and surrounding properties for the spring of 2003 to validate and expand known resources.

Sultan Minerals Inc. followed up last year's successful work on the **Kena** project, southwest of Nelson, with another significant exploration program in 2002. One of the year's highlights was the option agreement between Sultan and Kinross Gold Corporation, announced in September. Kinross must fund \$1 million of exploration by September 4, 2003 to acquire an option to earn a 60% interest in the property. To maintain and exercise the option Kinross is required to fund further expenditures of \$9 million over a five-year period, and make a series of cash payments to Sultan. This deal was particularly significant because it marked the first option of a property in British Columbia by a major metal producer in some time. Exploration was carried out in three phases throughout the year and comprised diamond drilling, IP surveying, an airborne radiometric/magnetometer survey, geological mapping, trenching, and soil sampling. Work programs were carried out on both the core Kena property and adjacent properties optioned by Sultan.

Drilling on the Gold Mountain Zone in 2002 continued to intersect broad intervals of low-grade gold mineralization near the eastern margin of the Silver King Porphyry. Hole 02GM-42 cut 188 metres assaying 0.98 g/t Au, includ-

ing higher grade intercepts up to 18.21 g/t Au over 2 metres. An extension of hole 01GM-10 from 185.32 metres to 359.05 metres depth (02GM-10 ext.) confirmed that gold mineralization extends to depth; the 94.8 metre interval between 213 metres and 307.8 metres depth assayed 0.95 g/t Au. In this hole the prospective porphyry-volcanic contact was intersected at 333.5 metres hole depth. The Gold Mountain Zone has now been tested along section lines over 1.8 kilometres of strike length along the porphyry-volcanic contact.

Gold mineralization is associated with 2 to 5% disseminated and fracture-filling pyrite found in areas of the Silver King monzonite to diorite plagioclase porphyry that have undergone silicification and strong potassic alteration. Fine-grained visible gold occurs locally in drill core. Some typical assays from 2001 drilling of the low-grade mineralized zone, which locally extends to surface, are 100 metres grading 1.21 g/t Au in hole 01GM-01, 116.05 metres grading 1.87 g/t gold in hole 01GM-03, 130 metres grading 1.14 g/t Au in hole 01GM-05, 160 metres grading 1.15 g/t Au in hole 01GM-08, and 140.38 metres grading 1.10 g/t Au in hole 01GM-28. Several bonanza-grade gold zones internal to the lower-grade areas (for example 172.1 g/t Au over 2 metres in hole 01-GM-08 and 240.1 g/t Au over 1.23 metres in hole 01-GM-03) are spatially related to the porphyry-volcanic contact.

In June Sultan released results of a preliminary study on the Gold Mountain Zone carried out by Snowden Mining Industry Consultants. The study reviewed a number of tonnage and grade scenarios using three types of processing methods at a range of gold prices. The company commissioned the study to determine "order of magnitude" thresholds to be reached in working towards an economic deposit.

Sultan continued to acquire adjacent properties in 2002. They added the **Silver King** claim group and the **Starlight** and **Daylight** properties to the previously acquired **Cariboo, Princess, Cleopatra, Great Western** and **Tough Nut** properties. Drill-testing of several vein systems comprising stockwork and sheeted veins in altered intrusive rocks was carried out on the **Great Western** property, which straddles the western contact of the Silver King Porphyry approximately 1 kilometre west of the Gold Mountain Zone. A soil geochemical survey over the area outlined a strong anomaly measuring 1200 by 300 metres with values of up to 1259 ppb Au. Grab samples of vein material assayed up to 119 g/t Au and 20.9 g/t Ag. Volcanic rocks of the Elise Formation underlie the **Starlight** property, located to the west of the Silver King intrusive. Historical workings are developed along a laterally persistent quartz vein that pinches and swells from 40 centimetres to 2 metres in width (Photo 4). Surface samples of the vein assayed up to 22.5 g/t Au and 150.9 g/t Ag over 1 metre. Three short drill holes were completed to test the Starlight structure, and confirmed the presence of a narrow high-grade vein at depth. It assayed 30.37 g/t Au over 28 centimetres.

No work was carried out during 2002 on the **Silver Lynx** VMS property, located 20 kilometres west of Nelson. Cassidy Gold Corp. entered into an option agreement in



Photo 2. Linda Dandy and Tom Schroeter examining the Starlight Vein, Kena Project

August with Delta Explorations Inc. whereby Delta may earn a 50% to 60% interest in the property, subject to an NSR and a series of cash and equity payments and work commitments. The property is underlain by argillites and siltstones of the middle Jurassic Ymir Group that overlie a package of phyllitic felsic tuffs. The entire sequence appears to have been folded to form a south-plunging antiform. Mineralization appears to be VMS-type, and is apparently stratabound and within 20 metres of the volcanic-sediment contact. Selected grab samples assayed up to 24.59% Zn, 22.35% Pb, 0.21% Cu, and 556.4 g/t Ag. A four-hole drill program in late 2001 intersected disseminated to semi-massive sulphide zones grading up to 6.87% Zn, 1.13% Pb, and 42.5 g/t Ag over 0.6 metres.

As in 2001, no 2002 exploration work was carried out on the **Remac** Zn Oxide project south of Salmo by project operators Redhawk Resources Inc. and joint venture partners ZincOx Resources PLC. Subject to financing, a significant drill program aimed at delineating a resource is currently planned for the spring of 2003.

Orphan Boy Resources Inc. undertook a feasibility study to examine the technical and economic viability of underground mining their **Willa** Au-Cu-Ag deposit near Silverton, which they optioned earlier this year. The company would truck ore to their **Goldstream** mill complex, 75 kilometres north of Revelstoke, for processing. The Willa deposit is hosted by an intrusive breccia pipe within a large roof pendant of metavolcanic rocks in the large Nelson Batholith. The property was explored during the 1980s by joint venture partners Rio Algom Exploration Inc., BP Minerals Ltd. and Northair Mines Limited. During this period 14 300 metres of surface core drilling, 1550 metres of underground development and 15 000 metres of underground drilling were carried out. This work delineated the near surface Main Zone that contains approximately 3.4 million tonnes grading 1.34 g/t Au, 0.32% Cu and 4.8 g/t Ag and the deeper West Zone that contains approximately 1.8 million tonnes grading 2.93 g/t Au, 0.66% Cu and 9.3 g/t Ag. The West Zone contains a higher-grade core of 635 000 tonnes grading 6.03 g/t Au, 0.92% Cu and 13.4 g/t Ag (note these resource numbers may not be National Instrument 43-101

compliant). The company is currently compiling the large amount of drill and sample data from past work on the property into a digital block model that will assist in mine planning and identification of areas with high exploration potential for expansion of near surface resources. Aspects of the feasibility study include: evaluation of the Goldstream mill infrastructure and process layout; assessment of the surface infrastructure requirements related to a 500 metric tonne per day underground mining operation at the Willa property; review and update of underground mine plans for Willa; estimating the cost of trucking Willa ore to the Goldstream mill; and submission of an application for mine development under the Environmental Assessment Act. The company announced acquisition of the adjacent **LH** gold property early in 2003.

Eagle Plains Resources Ltd. carried out further geological mapping and soil sampling on its **Iron Range** property northeast of Creston in 2002 in pursuit of Olympic Dam and sedex-type targets. The Iron Range Fault, which bisects the property, extends for more than 40 kilometres in a north-south direction. It is bordered by strongly albite-altered middle Aldridge clastic sediments intruded by gabbro sills. The fault zone itself is commonly occupied by foliated gabbro with albitic alteration rims. Hematite-magnetite zones occur along the length of the fault zone. In one area a hematite-magnetite breccia zone with a 3-kilometre strike extent has widths of 60 to 150 metres. Work this year identified copper mineralization associated with hematite and magnetite in several of the more northern trenches. Eagle Plains continues to seek a joint venture partner to advance the property.

In 2002 Klondike Gold Corp. continued the campaign to explore its large holdings in the Purcell basin for Sullivan-type Pb-Zn-Ag deposits. Early in the year a drill hole on the **Fran** property, located northeast of Moyie Lake, was completed to a depth of 560.2 metres. In the spring, Klondike Gold optioned the **Davent** property, located along the Lumberton Road southwest of Cranbrook, from SuperGroup Holdings Ltd. and drilled a single hole to a depth of 1171.3 metres. The hole intersected a 19 metre thick argillaceous "Sullivan time horizon" unit at the Lower-Middle Aldridge contact (LMC) with anomalous zinc and lead geochemistry (152 ppm Pb and 350 ppm Zn). Regionally in the Aldridge Basin, the thickness of the Sullivan Horizon varies between 1 and 10 metres. At the Sullivan mine it is approximately 100 metres thick, and in the Davent sub-basin previous drilling indicates that it is up to 86 metres thick and has anomalous base metal sulphide concentrations. Previous drill holes in the Davent area also showed that the sub-basin is 4 kilometres wide. A hole located southwest of the 2002 drill hole, closer to the interpreted axis of the sub-basin, is planned for 2003.

To the southwest of the Davent property, in the **West Moyie Block** area, Klondike Gold extended a 1997 Kennecott drill hole (K97-2) that was originally drilled to test a large gravity anomaly in the Panda-Payday sub-basin. The 1997 hole was stopped before reaching the LMC when it intersected a 190-metre thick gabbro sill. Klondike Gold extended the hole from 762 metres to 1545.4 metres before

reaching the limits of the drill rig. However, based on stratigraphic marker interpretation, the hole is still 200 to 300 metres above Sullivan Time. At the northern end of the Payday Basin Klondike Gold drilled a single hole on the Payday #1 property, approximately 1.5 kilometres southwest of a previously drilled hole (SMC95-1), which intersected a thickened Sullivan Horizon (16.8 metres) with visible sphalerite and pyrrhotite, one of only two holes drilled to the Sullivan Time horizon within this sub-basin.

In the **Cold Creek** area east of Yahk, Klondike Gold extended a hole, previously drilled by Minnova to a depth of 425m (MM-91-01), to a depth of 1200.9 metres. The hole intersected interbedded Ramparts facies quartzites and Lower Aldridge siltstones, suggesting it penetrated the western edge of the basin. A drill hole further to the east to test the basin axis is planned for the spring of 2003.

On the poorly exposed **Thea 17** gold prospect, located along the western edge of the Payday Basin, Klondike Gold excavated a series of trenches, and traced the silicified shear zone for a strike length of at least 250 metres. The prospect was discovered in the late 1990s and exposed in two short trenches in 1999. The shear zone, which strikes northerly and dips steeply, cuts Middle Aldridge Formation siltstones and varies in width from approximately 2 metres to more than 11 metres. Preliminary sampling shows that the zone is anomalous in gold over its entire length. Chip samples of the zone range in grade from 14.5 g/t Au across 4 metres in the central portion of the zone, 0.47 g/t Au over 6 metres in the most northerly trench, and 1.23 g/t Au across 2 metres in the southernmost trench. A grab sample collected along a ridge approximately 90 metres north of the northernmost trench assayed 652 ppb Au. Klondike Gold intends to carry out further trench sampling and diamond drilling on the prospect in 2003.

National Gold Corporation entered into an agreement during the summer with Cranbrook-based private exploration company Supergroup Holdings Ltd., to acquire a 100% interest in all their properties in the Purcell Basin not subject to previous agreements. Subsequent to announcement of the agreement, significant surface work programs were initiated on several precious metal properties, particularly the **Zinger, Gar, Lov, and HS** claim groups in the Perry Creek and Hellroaring Creek drainage areas. Perry Creek was a significant placer creek during the East Kootenay gold rush in the later part of the 19th century. The work program included prospecting, stream sediment, soil and rock sampling, geological mapping and further claim staking. A trend of gold mineralization in bedrock extends approximately 10 kilometres on the Zinger property. Gold occurs in Proterozoic sediments of the Purcell Supergroup that are sericitized and silicified with quartz veinlet stockworks, and also in thin siliceous veinlets in Cretaceous quartz monzonite that intrudes the older sediments. More recently, National Gold announced that it intends to merge with Alamos Gold Corporation, their joint venture partner on the large Mulatos gold deposit in Mexico. As a result they terminated their agreement with Supergroup Holdings Ltd.

Late in the year Chapleau Resources Ltd. entered into an option agreement to acquire a 70% interest in the **Bar 19**

property, 12 kilometres west of Cranbrook, which includes the Lookout gold prospect. At the Lookout prospect gold mineralization is related to an altered Cretaceous syenitic dyke that occurs along the east-trending Cranbrook fault. The prospect was discovered in the early 1990s at which time soil sampling and a series of trenches traced the mineralization over a strike length of 200 metres. Trench sampling yielded assays as high as 0.132 oz/ton (4.5g/t) Au over 85 feet and grab samples of quartz stockwork in monzonite yielded up to 0.592 oz/ton (20.3 g/t) Au, 3 oz/ton (102.9 g/t) Ag and 1.7% Pb. Chapleau drilled two holes on the Lookout zone prior to the end of 2002 and recommenced the drill program after a Christmas break (Photo 3). Both holes completed in 2002 were drilled to the south from the same setup but at different dips; total length was 797 metres. The holes are collared in altered Creston Formation siltstones and intersect variably altered syenitic intrusives. Significant gold mineralization was encountered over several intervals in both holes; highlights include 1.62 metres grading 15.25 g/t Au and 4.15 metres grading 2.15 g/t Au, including 0.7 metres grading 8.27 g/t Au, from hole B-02-01 and 7.45 metres grading 10.33 g/t Au, including a 3.05 metre interval grading 23.36 g/t Au, from hole B-02-02.

In mid December Chapleau Resources Ltd. announced assembly of a major land position, 734 claim units, in the Cranbrook area through several option agreements and direct claim staking of an additional 592 units. The major option agreement was with Cranbrook-based Supergroup Holdings Ltd. to acquire a 90% interest in many of their gold properties originally the subject of the agreement with National Gold Corporation referred to previously. These properties comprise 610 units and include the **Zinger, Zeus, Hot Sausage, Love, Jackleg, IT, and TAC** properties. The large land package hosts numerous known gold occurrences and was laid out to cover two major mineralized trends identified in the Cretaceous Bayonne magmatic belt within the area. With the exception of the Jackleg, TAC, and IT properties, located approximately 35 kilometres northeast of Cranbrook on the eastern side of the Rocky Mountain Trench, the land holdings cover a large



Photo 3. Diamond drilling on the Lookout Zone, Bar property.

area to the west of Cranbrook and are contiguous with the Bar 19 property, which hosts the Lookout Zone.

Late in 2001 Golconda Resources Ltd. optioned the **Lone Peak** property, located east of Fort Steele, from a local claim owner. The property is underlain by rocks of the Creston and Kitchener formations of the Purcell Supergroup. The Spar Lake quartzite unit in the Creston Formation is equivalent to the rocks which host the Spar Lake Cu-Ag deposit, 85 kilometres to the south in Montana. This quartzite is 100 metres thick on the property and can be traced for approximately 3 kilometres along strike. Detailed mapping and prospecting carried out on the property as part of Golconda's due diligence, identified a 300 metre wide anticlinal fold in the Spar Lake unit that contains sheeted quartz veins and stockworks. Assays from select grab samples collected within this zone contain up to 1% Cu, 27 g/t Ag, and 32 g/t Au. Visible gold occurs in sheeted quartz veins up to 10 centimetres in width. Golconda also optioned the **Bri-Lin** and **Sully** claims to the north of Lone Peak. In 2002 the company drilled 8 holes in four separate locations for a total of 2054 metres (Photo 4). Zones of quartz veins with anomalous gold values and calcite veins with disseminated Cu-Pb-Zn sulphides were intersected. The final hole tested the projected extension of the Spar Lake quartzite unit. Disseminated bornite and bornite mineralization in quartz veinlets occur at surface, and the hole intersected quartzite with disseminated malachite. The company is currently evaluating future exploration plans for the property.

Jasper Mining Corporation carried out a surface exploration program on their **Vowell Creek** property, located 30 kilometres southwest of Golden. The property includes the past-producing Ruth Vermont mine, which has a historical indicated mineral resource (drill indicated and probable) of 302 000 tons of vein and replacement type ore averaging 6.8 oz/ton (233 g/t) Ag, 4.8% Pb, and 5.4% Zn (resource may not be compliant with National Instrument 43-101). The property is underlain by folded clastic and carbonate sediments of the Late Proterozoic Horsethief Creek Group, a subdivision of the Windermere Supergroup. The work

program this year included soil and rock sampling, geological mapping, and prospecting. Rock and soil sampling demonstrated that significant gold mineralization is associated with the vein system. Selected high-grade grab samples of vein material assayed up to 0.50 oz/ton (17.1 g/t) Au, 66.25 oz/ton (2271 g/t) Ag, 39.98% Pb, and 30.63% Zn. Based on this year's work and compilation of previous data, Jasper believes the Ruth Vermont vein system is situated within a larger gold±arsenic±lead±zinc mineralized system that is coincident with a prominent regional structure that hosts numerous mineral occurrences. They think that there is opportunity to extend the vein and replacement-type mineralization on the north side of Vermont Creek as well as in the immediate area of the Ruth Vermont mine. The company is planning an expanded program for 2003 that will include underground and surface drilling.

An agreement was announced in the spring whereby Goldrea Resources Ltd. can earn a 55% interest in one or both of the **Crowsnest** and **Howell** gold properties in the Flathead drainage basin, 30 to 50 kilometres southeast of Fernie, from Eastfield Resources Ltd. Both properties cover large gold anomalies related to Cretaceous alkaline rocks that intrude Paleozoic carbonate-dominant sedimentary sequences. In 1999, trenching on the Crowsnest property exposed a mineralized zone associated with a syenite dyke hosted by limestone that assayed 8.57 g/t Au over 16 metres in trench TK99-1 (Photo 5). In the general area of trenching numerous altered float boulders of various rock types contain anomalous gold concentrations ranging up to 620 g/t Au. In 2002 Goldrea drilled 660 metres in 11 holes in the area around and to the south of TK99-1. The third hole of the program (DDH-02-03), located 200 metres to the south of TK99-1 (Photo 6), intersected a 42.5 metre interval which assayed 0.40 g/t Au, including a 12 metre interval assaying 1.05 g/t Au and a 3 metre interval grading 2.62 g/t Au, in strongly altered monzonite and limestone. This hole was particularly noteworthy as it was the first intersection of significant gold mineralization in a drill hole on the Crowsnest property. Based on the distribution of mineralized rubble, the company believes that the mineral-



Photo 4. Property vendor Brian Kostiuk in front of drill rig, Lone Peak property.



Photo 5. Trench TK99-1, Crowsnest project.



Photo 6. Diamond drilling on the Crowsnest project

ized trend identified in hole DDH-02-03 and trench TK99-1 could continue for up to 2 kilometres. Further exploration work including drilling along the mineralized trend is planned for 2003.

On the **Howell** property, Goldrea conducted an airborne geophysical survey over a portion of the claim group and carried out a 3-hole, 328-metre drill program. Drilling by previous operators on the Howell property intersected 1.23 g/t Au over 58 metres (hole HRC-25) in pyritized and silicified limestone that is intruded by syenite. The three holes drilled this year stepped out to the west up to 200 metres from HRC-25. All three holes intersected wide zones of low-grade gold mineralization in silicified and pyritized limestone intruded by syenitic dykes, sills, and diatreme breccias. Hole DDH-02-01, located 200 metres west of HRC-25, assayed 0.52 g/t Au over 149.4 metres, including 30 metres grading 0.83 g/t Au. DDH-02-03, located 65 metres west of HRC-25, intersected 88.4 metres assaying 0.58 g/t Au, including an interval of 27 metres grading 1.01 g/t Au. A number of magnetic and radiometric anomalies were detected by the airborne survey. These are believed to be caused by multiple areas of alkalic intrusion into the carbonate-dominated stratigraphy that underlies the property. The company plans to carry out additional soil sampling and diamond drilling in 2003.

INDUSTRIAL MINERALS

Crystal Graphite Corporation continued to advance its **Black Crystal** graphite project in the Hoder Creek area of the Slocan Valley. The company submitted an application for a mining permit and proceeded with commissioning of its Koch Creek graphite pilot plant, 25 kilometres to the south of the quarry site. The Black Crystal property is underlain by Paleozoic rocks of the Valhalla Gneiss complex. On the property, calc-silicate gneiss, intruded by pegmatitic dykes, hosts crystalline and flake graphite. The zone of graphite mineralization dips to the southwest. It extends more than 400 metres in an east-west direction, and 300 metres in a north-south direction at the Hoder Creek quarry site. In 2002 the company released results of a new resource

calculation carried out by AMEC E&C Services Limited for the Black Crystal graphite project. The resource estimate was based on data collected over the past few years from 64 drill holes, 176 slit trenches, and 1855 metres of linear trench sampling. The weathered Regolith zone was found to host 648 000 tonnes containing 1.82% fixed carbon in the measured and indicated resources category and 516 000 tonnes containing 1.69% fixed carbon in the inferred resources category. The underlying Calc-Silicate Zone was found to host indicated resources of 4 763 000 tonnes containing 1.21% fixed carbon in the indicated category and 4 591 000 tonnes containing 1.24% fixed carbon in the inferred mineral resource category.

Tiger Ridge Resources Ltd. continued underground development and surface exploration drilling on its **Jubilee Mountain** barite project west of Spillimacheen in 2002. The property is underlain by massive dolomite and limestone of the Middle-Upper Cambrian Jubilee Formation. Barite and sulphide mineralization are hosted in solution breccias and related veins in the Jubilee Formation. Approximately 55 metres of drifting and 22 metres of raising were carried out, and a 1000 tonne barite bulk sample was collected. A total of 2086 metres of surface and underground diamond drilling in 31 holes were completed. Surface drilling took place to the northeast of the adits in the "Nose" area. The company made preliminary investigations into the potential for mining barite from underground workings, and the feasibility of recovering it from tailings at the adjacent, past producing Silver Giant mine, which is held as part of the Jubilee Mountain property by Tiger Ridge. A total of 840 000 tonnes of barite-sulphide ore was mined from the deposit in the 1940s and 1950s, and Baroid of Canada produced 180 000 tonnes of barite from the tailings in the 1960s and 1970s. Tiger Ridge intends to continue their work program in 2003.

Westroc Inc. completed 3656 metres of drilling in 66 holes on its **Elkhorn West** gypsum project, 10 kilometres east of Invermere and immediately west of their Elkhorn gypsum quarry operation. The program outlined an undisclosed gypsum resource. The Burnais Formation, a sequence of Devonian carbonates and evaporites, hosts gypsum deposits in the area.

In the fall of 2001, Skeena Resources Limited carried out a short drilling and bulk sampling program on their **Ice** diamond project north of Elkford. Results were released in 2002. Lower Carboniferous to Triassic carbonates and clastic rocks of the Rocky Mountain Fold and Thrust Belt underlie the property. A cluster of four known kimberlite pipes occurs on the property. In 1996, a 20-ton bulk sample, comprising 90 to 95% non-kimberlite material, was collected from the Ram 6 kimberlite. It yielded 3 poor quality macro-diamonds, the two largest stones weighing a combined 0.23 carats. A 1996 bulk sample from the Ram 5 kimberlite yielded 3 good quality macro-diamonds weighing a combined 0.255 carats from 35 tons of surface material of which 95% was reportedly non-kimberlitic. In 2001 a total of 3 diamond drill holes were completed on the RAM 6 kimberlite, one of which intersected a 105.2 metre kimberlitic interval (41.8 to 147.1 metres). Caustic fusion anal-

ysis of 143m of split NQ core from the RAM 6 pipe identified no microdiamonds. Two short drill holes on the RAM 5 kimberlite, 1km to the south, failed to locate any significant kimberlitic material. A 3.8 tonne bulk sample was collected from fresh material at the Bonus kimberlite pipe, 3 kilometres west of RAM 6. Dense media separation analysis to recover diamonds in the +0.5mm to +6.0mm size range was unsuccessful. The company is currently evaluating its options regarding the Ice property.

COAL

Most coal drilling activity in the region took place within or adjacent to existing open pit mining operations. The coal companies carried out a total of 38 147 metres of reverse circulation drilling in 186 holes. Of this, 13 077 metres in 57 holes were classified as “deposit appraisal”, and 25 070 metres in 129 holes were classified as “mine development” in-pit drilling. Most of the drilling that was carried out away from existing pits was conducted by the **Line Creek, Elkview** and **Fording River** operations.

At the **Fording River** mine 4630 metres in 10 holes were drilled on the Chauncey Ridge project to the south of the mine. At Fording’s **Greenhills** mine, 4400 metres of in-pit drilling were carried out in 32 holes. At the **Coal Mountain** mine, another Fording operation, the company drilled 4975 metres in 21 holes in-pit and 1000 metres in 3 holes on the Leach Ridge project, approximately 12 kilometres west of the mine site. At Teck Comnico’s **Elkview** mine, 2695 metres in 36 holes were drilled in producing

pits. A total of 1977 metres in 26 holes were drilled outside of operating pits to delineate long-term reserves. At the **Line Creek** mine, owned by Luscar Ltd., a total of 5740 metres in 18 exploration holes were drilled, mainly in the Saddle, MSA North, and North Line Creek areas. In-pit drilling accounted for 129 holes with a cumulative length of 13 000 metres.

PRODUCING MINES AND QUARRIES

The locations of producing mines and quarries in the Kootenay Region for 2002 are shown on Figure 7 and listed on Table 2. Production data is included where it is available.

METALS

The giant **Sullivan** Pb-Zn-Ag mine at Kimberley closed permanently in December 2001 after more than a century of continuous production. Since differential flotation to separate lead and zinc concentrates was initiated at the mine in 1916, the mine produced more than 17 million tonnes of Zn and Pb metal and more than 285 million ounces of Ag. During 2002, decommissioning and reclamation work at the mine site began. There are currently no operating metal mines in the Kootenay Region.

INDUSTRIAL MINERALS

All the major industrial mineral producers in the region maintained production during 2002 at roughly the same

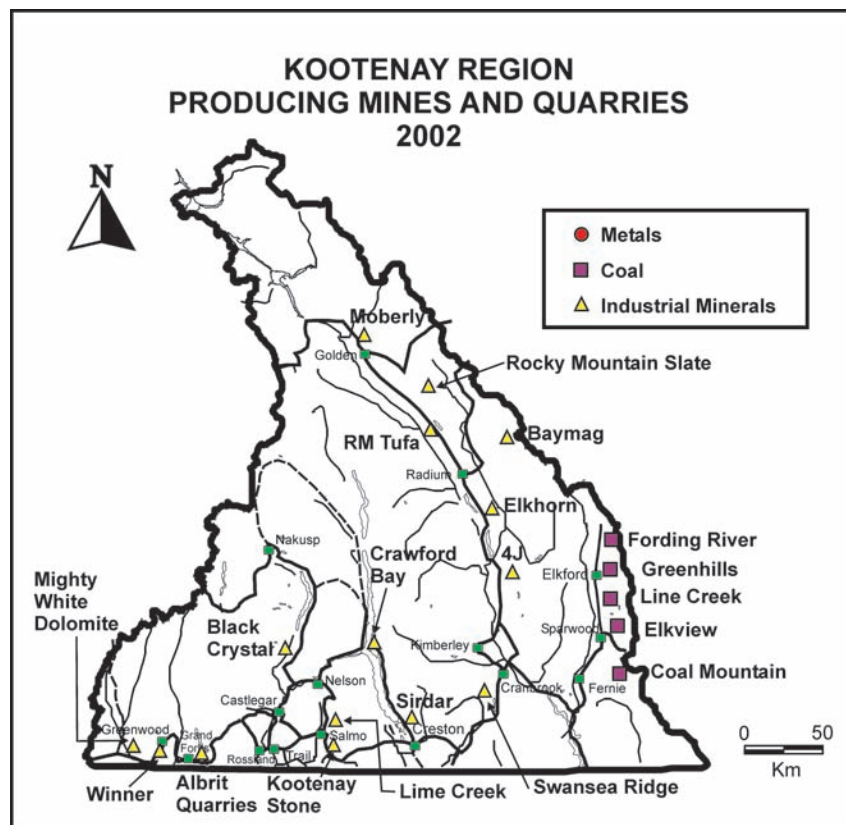


Figure 7. Producing Mines and Quarries, 2002.

TABLE 2
PRODUCING MINES AND QUARRIES, KOOTENAY REGION, 2002

Mine	Operator	Deposit Type	2002 Production
Fording River	Fording Coal Limited	Metallurgical coal	14 million tonnes combined
Greenhills	Fording Coal Limited	Metallurgical coal	combined
Coal Mountain	Fording Coal Limited	Metallurgical coal	13 million tonnes combined
Elkview	Teck Corporation	Metallurgical coal	5.6 million tonnes
Line Creek	Luscar Ltd.	Metallurgical coal	2.8 million tonnes
Elkhorn	Westroc Inc.	Gypsum	~475,000 tonnes
Mount Brussilof	Baymag Mines Co. Ltd.	Magnesite	~200,000 tonnes
Four J	Georgia Pacific	Gypsum	~175,000 tonnes
Moberly	Highwood Resources Ltd.	Silica sandstone	~80,000 tonnes
Rocky Mountain Tufa	Alan Wolfenden	Tufa	~2,500 tonnes
Winner	Roxul (West) Inc.	Diorite	~50,000 tonnes
Crawford Bay	IMASCO Minerals Inc.	Dolomite	
Kootenay Stone	Kootenay Stone Centre	Flagstone	
Lime Creek	IMASCO Minerals Inc.	Limestone	
Rock Creek	Mighty White Dolomite Ltd.	Dolomite	
Rocky Mountain Slate	Rocky Mountain Slate	Flagstone	
Sirdar	IMASCO Minerals Inc.	Crushed granite	
Swansea Ridge	CPR	Railroad Ballast	

levels as in 2001. Westroc Inc. expects to produce approximately 475 000 tonnes of gypsum from its **Elkhorn** quarries near Windermere in 2002. Discovery of the **Elkhorn West** gypsum resource west of the Elkhorn quarry may extend the life of that operation beyond the projected 2005 exhaustion of current reserves. Georgia Pacific Canada Inc. is expected to produce about 175 000 tonnes from its **Four J** deposit. Typically it ships about 100 000 tonnes of gypsum per year from its Four J quarry near Canal Flats to its wallboard plant near Edmonton, Alberta. Both Westroc and Georgia Pacific operate wallboard plants in the Vancouver area.

Baymag Mines Company Ltd. produces high quality magnesite from the **Mount Brussilof** pit at a rate of approximately 200 000 tonnes annually. The magnesite is transported by truck to Exshaw, Alberta where the company has two plant sites that produce sintered, calcined, and fused magnesia. The Silica Division of Highwood Resources Ltd. expects to ship about 80 000 tonnes of silica from its **Moberly** quarry, near Golden, primarily to Lavington, British Columbia. In the past it shipped to Springfield, Oregon, and other destinations, however, since the collapse of the silicon and ferrosilicon production in the United States, these shipments have stopped.

IMASCO Minerals Inc. processes a variety of specialized industrial mineral products at its plant at Sirdar, north of Creston. Raw materials include dolomite from the underground **Crawford Bay** mine near Kootenay Lake, and calcium carbonate from the **Lime Creek** quarry on Lost Creek, south of Salmo. Dolomite is used for soil conditioning, as a white ornamental aggregate, for stucco and roofing, as a fine aggregate, and for synthetic marble products.

White calcium carbonate is used as a filler in paper, paint and plastics. The company also produces crushed granite and quartzite products from material mined at **Sidar** and near Crawford Bay. Dolomite is also quarried and processed by Mighty White Dolomite Ltd. at **Rock Creek**.

At the **Winner** quarry, near the past-producing Phoenix mine in the Greenwood mining camp, approximately 50 000 tonnes of diorite was mined and crushed. Half was transported to the insulation and mineral wool manufacturing plant of Roxul (West) Inc. in Grand Forks, for plant feed, the other half was stockpiled for 2003. A further 20 000 tonnes was extracted from the **North Fork** quarry. Canadian Pacific Railway mined, crushed and shipped rail-



Photo 7. TeckCominco's Elkview Coal Mine.

road ballast from its **Swansea Ridge** gabbro quarry south of Cranbrook.

Kootenay Stone Centre and other small operators quarry flagstone in the West Kootenays. **Rocky Mountain Slate** opened a new slate quarry east of Golden. The blue-gray and beige products are used as flagstone. **Rocky Mountain Tufa** produced about 2500 tonnes of tufa, mainly for landscaping applications.

COAL

The first half of 2002 was marked by very protracted negotiations to establish prices for coking coal being shipped to Japan; contracts were not finalized until July with the Australian producers, and it was even later for the Canadian producers. These negotiations delayed coal shipments in the spring and some companies lost sales as a result. Fording in particular announced several production shutdowns in the later part of the year.

Fording Inc. has not provided individual production tonnage information but the total 2002 production was 14 million tonnes for the **Fording River**, **Greenhills**, and **Coal Mountain** mines combined. This is a decrease of 3.5 million tonnes from the 2001 level. **Line Creek** expects to produce 2.6 million tonnes of coking coal and 0.4 million tonnes of thermal coal. **Elkview's** production is estimated to be between 5.5 and 5.7 million tonnes, similar to that in 2001 (Photo 7).

In October, Sherritt International Corp. and the Ontario Teachers Pension Plan, which already control Luscar Ltd. and therefore the **Line Creek** mine, announced a hostile takeover bid for the assets of Fording Inc., which it planned to roll into an income trust. Fording countered the bid with a plan to merge the Fording assets with the Elkview operation of TeckCominco's and Westshore Terminals port facilities to form an income trust. In January 2003 all of the parties announced a complex new C\$1.8 billion agreement, subject to shareholder and regulatory approval, to jointly form the Fording Canadian Coal Trust. This investment vehicle will combine all the metallurgical coal assets of Fording, Luscar, and TeckCominco (all the Elk Valley mines) as well as the export terminals owned by Luscar and Westshore Terminals.

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