

SUMMARY

Kootenay King Resources Inc. holds 107 claim units which cover a molybdenum-copper-tungsten-lead-zinc-silver \pm gold prospect in the Erie Creek area of southeastern British Columbia. In 1987, the company conducted an exploration program comprising line cutting, prospecting and geochemical surveys on the property. Results of this work are summarized in this report.

The property is situated 11 kilometres northwest of Salmo and is accessible by good logging road. Nine of the 25 largest gold producers in British Columbia, in terms of past production, lie within 25 kilometres of the property.

The Erie Creek prospect is centered on a complex swarm of porphyritic acid to basic dikes of Eocene age which intrude sedimentary and volcanic rocks of the Hall and Rossland Formations, both of Jurassic age. The dike complex extends northward and southward for a total distance of 17 kilometres and is six kilometres wide. Mineralization on the property occurs in four concentric zones:

- 1) an inner zone of molybdenite + scheelite (tungsten) mineralization which occurs in fracture and quartz vein stockworks;
- 2) a surrounding zone of chalcopyrite + scheelite in fracture zones and shear veins;
- 3) an outer zone of galena-sphalerite-chalcopyrite \pm gold shear veins; and
- 4) a widespread zone of disseminated and fracture controlled pyrite and pyrrhotite.

The property has had a long history dating back to the late 1890's. The numerous mineralized shear zones have been explored by prospect pits, shafts and adits. The molybdenum-copper potential has been investigated in recent years by McIntyre Porcupine Mines and AMAX Exploration Ltd. (now Canamax Resources Inc.). Their work to date has included geological, geochemical and geophysical surveys and 2778 metres of diamond drilling in 15 holes. However, surveys to date have not fully delineated or tested the lead-zinc-silver zone. Silver values of

fully delineated or tested the lead-zinc-silver zone. Silver values of up to 7.8 ounces per ton have been reported from shear veins and values of 1.2 ounces per ton have been reported in one of McIntyre Porcupine's drill holes.

Exploration work conducted by Kootenay King has identified gold values of up to 0.045 ounces per ton in some shear veins. Also identified is a prominent silver-lead-zinc anomaly with scattered gold, copper and arsenic anomalies in soils of the northwestern part of the claim group. A follow-up exploration program is proposed to evaluate these anomalies.

CONCLUSION

The Erie Creek prospect is a zoned porphyry-type deposit with a central quartz vein stockwork zone containing molybdenum-copper-tungsten mineralization, and a peripheral zone with veins containing copper, lead, zinc and silver mineralization.

Soil geochemical surveys to date have partly defined the peripheral zone, particularly in the northwestern part of the claim group where widespread silver, lead, zinc anomalies, weaker copper and arsenic anomalies and scattered gold anomalies have been obtained.

A modest follow-up exploration program is warranted to identify the source of the anomalies. The survey area is underlain by volcanic and sedimentary rocks which are potentially favourable hosts for stratabound base metal mineralization. Also underlying part of the area is a lobe of the Nelson batholith, the contact area of which might be a favourable locus for epigenetic mineralization.

In addition, other lower priority targets remain as suggested by Canamax. Should molybdenum tungsten and copper prices improve, then a possible target would be a buried high grade ($\pm 0.4\%$ MoS₂ equivalent) at depths greater than 200 metres below the Erie Creek valley floor. Other targets are low-grade tungsten in calc-silicate hornfels on the west side of Erie Creek and silver-bearing hydrothermal breccias beneath Erie Creek.

RECOMMENDATION

A two phase exploration program is recommended to further evaluate the Erie Creek property. Phase I will comprise prospecting, mapping, trenching, and rock sampling (1) to evaluate the multi-element geochemical anomalies obtained in the northwest part of the claim group and (2) to conduct additional sampling and geochemical surveys to fully define the area of interest on the Ben Hassen showing. A few more widely spaced geochemical survey lines should be established in order to fully outline the silver-lead-zinc zone. Should results be favourable, then a Phase II program of trenching and diamond drilling will be warranted.

ESTIMATED COSTS OF RECOMMENDATIONPHASE I Prospecting, mapping, trenching and rock sampling.

Salaries

| | | |
|--------------------------------|------------------------------|-----------------|
| Geologist | 15 man-days @ \$200/day | \$ 3,000 |
| 2 Assistant samplers | 30 man-days @ \$150/day | 4,500 |
| Room and Board | 45 man-days @ \$40/day | 1,800 |
| Geochemical analyses | 250 samples @ \$15 each | 3,750 |
| Vehicle rental, transportation | | 1,000 |
| Bulldozer trenching | 50 hrs. @ \$80 all inclusive | 4,000 |
| Report | | <u>2,000</u> |
| | Subtotal | \$20,050 |
| | Contingencies | <u>1,950</u> |
| | TOTAL PHASE I | \$22,000 |

PHASE II Diamond drilling.

| | | |
|--------------------------------------|--|------------------|
| Drilling | 2,000 feet @ \$35/foot all inclusive | \$70,000 |
| Bulldozer | Trenching, road construction, drillsite preparation, land reclamation 100 hours @ \$100/hour | 10,000 |
| Engineering, supervision, consulting | | 7,000 |
| Assays | | <u>5,000</u> |
| | Subtotal | \$92,000 |
| | Contingencies | <u>10,000</u> |
| | TOTAL PHASE II | \$102,000 |
| | GRAND TOTAL | \$124,000 |

INTRODUCTION

Kootenay King Resources Inc. holds, by staking and by option from Canamax Resources Inc., 107 claim units in the Erie Creek area near Salmo, in southwestern British Columbia. The claims cover a concentrically zoned molybdenum-tungsten-copper-lead-zinc-silver stockwork and vein system centered on a swarm of acid to basic dikes. The property was acquired by the company for its precious and base metal potential.

The Erie Creek property is one of a large number of important mineral deposits comprising a variety of commodity types in the Nelson-Salmo-Ymir area. Nine of the twenty-five largest gold mines in B.C. (in terms of past production), lie within 25 kilometres of the property. These include the deposits of the Sheep Creek and Ymir gold camps, and the Granite-Poorman, Second Relief and Arlington Mines. Exploration activity in the area has been intense, with companies such as Lectus Development/U.S. Borax having announced new discoveries.

This report, prepared at the request of Mr. Larry Sostad, summarizes results of exploration work carried out by the company during the period 1985 to 1987. Also summarized are results of work carried out prior to 1980 by AMAX Exploration Inc. (now Canamax Resources Inc.) who investigated the property for its potential as a large tonnage low-grade molybdenum-copper-tungsten deposit.

LOCATION AND ACCESS

The Erie Creek property is situated 11 kilometres northwest of Salmo and 25 kilometres southwest of Nelson (see Figures 1 and 2). The claims lie on both sides of Erie Creek near its confluence with Grassy and Craigtown Creeks.

The area is in the Bonnington Range of the Selkirk Mountains. Topography in the claim area is moderately steep but not rugged. Elevations range from 900 to 1,700 metres (3,000 to 5,500 feet). Slopes are covered with a light growth of cedar, balsam fir, Douglas fir,

larch, hemlock, poplar and birch with an undergrowth of alder, willow, huckleberry and false azalea.

Access is by a well maintained logging road from Highway 3, about 15 minutes' drive from Salmo.

CLAIM DATA

The Erie Creek property comprises 107 claim units (Figure 3) and are registered in the name of Kootenay King Resources Inc. Claim data are as follows:

| <u>CLAIM NAME</u> | <u>RECORD NO.</u> | <u>TYPE</u> | <u>LOT NO.</u> | <u>NO. OF UNITS</u> | <u>EXPIRY DATE</u> |
|-------------------|-------------------|------------------|----------------|---------------------|--------------------|
| Arnold | 867 | Rev. Crown Grant | 4079 | 1 | Nov. 23, 1988 |
| Belle | 860 | " " | 2461 | 1 | Nov. 23, 1988 |
| Ben Hassan | 866 | " " | 3663 | 1 | Nov. 23, 1988 |
| Bully Boy | 862 | " " | 3238 | 1 | Nov. 23, 1988 |
| Rosa | 859 | " " | 2460 | 1 | Nov. 23, 1988 |
| Copper King | 910 | " " | 5153 | 1 | Dec. 15, 1988 |
| Dora | 909 | " " | 5152 | 1 | Dec. 15, 1988 |
| Drum Lummon | 912 | " " | 5481 | 1 | Dec. 15, 1988 |
| Eddie | 870 | " " | 12186 | 1 | Nov. 23, 1988 |
| Florence | 861 | " " | 3227 | 1 | Nov. 23, 1988 |
| Good Enough | 911 | " " | 5466 | 1 | Dec. 15, 1988 |
| Gordon | 913 | " " | 12175 | 1 | Dec. 15, 1988 |
| Homestake | 908 | " " | 3662 | 1 | Dec. 15, 1988 |
| Louise | 871 | " " | 12187 | 1 | Nov. 23, 1988 |
| Maude S | 865 | " " | 3662 | 1 | Nov. 23, 1988 |
| Monte Carlo | 907 | " " | 1066 | 1 | Dec. 15, 1988 |
| Nelson | 914 | " " | 12177 | 1 | Dec. 15, 1988 |
| Ontario | 864 | " " | 3659 | 1 | Nov. 23, 1988 |
| Rockford | 863 | " " | 3435 | 1 | Nov. 23, 1988 |
| St. Louis | 868 | " " | 13176 | 1 | Nov. 23, 1988 |
| Westminster | | | | | |
| Fraction | 869 | " " | 12184 | 1 | Nov. 23, 1988 |
| June 1 | 4168 | Mod. Grid. | - | 16 | July 2, 1989 |
| June 2 | 4393 | " " | - | 8 | Aug. 11, 1989 |
| June 3 | 4394 | " " | - | 16 | Aug. 11, 1989 |
| June 4 | 4395 | " " | - | 16 | Aug. 11, 1989 |
| June 5 | 1019 | " " | - | 12 | Apr. 18, 1989 |
| June 6 | 4396 | " " | - | 12 | Aug. 11, 1989 |
| Insurance 1-6 | 4397-4402 | 2-post | - | 6 | Aug. 11, 1989 |

HISTORY

Mineralization on the property was first explored in the 1890's. Little information is available on the work carried out at that time. In the 1896 B.C. Minister of Mines Annual Report (Carlyle, 1896) brief mention is made of discoveries on the Ben Hassan and Arnold (reverted crown grant) claims.

In 1926 to 1928 Consolidated Mining and Smelting Ltd. conducted diamond drilling on "copper-gold" deposits (O'Grady, 1928) on the Arnold, St. Louis and Drum Lummon claims.

In 1968, the property was held by Canzac Mines Ltd. and optioned to McIntyre Porcupine Mines Ltd. who in 1969 and 1970 conducted 1712 metres of drilling in 12 holes. The best mineralization encountered was 85 metres grading 0.115% MoS_2 and 0.05% copper including a 30 metre section grading 1.2 oz/ton silver. The property was acquired by AMAX who, in 1976 to 1979, conducted detailed geological mapping, geochemical sampling, geophysical surveys and diamond drilling totalling 1066 metres in four holes mainly in the central stockwork zone. Best grades encountered were 17 metres grading 0.06% WO_3 in drill hole 80-4, and 36 metres grading 0.07% MoS_2 in drill hole 79-1.

REGIONAL GEOLOGY

The Erie Creek property is in the Nelson Map-Area of Little (1960) and the Bonnington Map-Area of Walker (1934). Geology of the immediate claim area is summarized on Figure 4.

The property lies near one of the lobes of the 160 m.y. old Nelson batholith. In this area, it is composed of coarse grained porphyritic granodiorite-granite containing numerous white orthoclase phenocrysts in a groundmass of orthoclase, plagioclase and quartz with minor amounts of hornblende and biotite. The granite has intruded sedimentary rocks of the "Sinemurian beds" (Little, 1960) and volcanic rocks of the Rossland Formation, both of Lower Jurassic age.

A complex array of dikes and sills of porphyritic rhyolite, quartz

latite, dacite, and basalt (Erie Creek dike swarm) occurs in the Erie Creek basin for a distance of at least 17 kilometres, between the Arlington and Second Relief Mines. The swarm is about one kilometre wide. An age determination of 47 million years has been reported by Hodgson et al (1979). Dikes trend north-south and parallel Erie Creek. Abundance of dikes ranges from about three per 100 metres to as many as thirty per 100 metres in the centre of the property where one or more of the dikes assume stock-like dimensions.

A number of former producers of base and precious metals occur in the immediate vicinity of Erie Creek, notably the Second Relief Mine (past production - 99,000 ounces of gold from 228,000 tons of ore) to the north and the Arlington (past production - 56,000 ounces of gold and 100,000 ounces of silver from 85,000 tons of ore). Both deposits and a number of other prospects are associated with the Erie Creek dike swarm although a direct genetic relation has not been established.

PROPERTY GEOLOGY

The property geology has been described by the writer (Allen, 1977) and Hodgson, Parry and Lebel (1980). The following is a brief summary. For details, see assessment reports on file with the B.C. Ministry of Energy, Mines and Petroleum Resources.

The main geological features of the property are a quartz monzonite stock containing a well developed quartz vein stockwork about 400 metres in diameter, and swarms of quartz-feldspar porphyry dikes. Host rocks are hornfelsic siltstone of the "Sinemurian Beds" and/or Hall Formation, and augite basalt and volcanic breccia of the Rossland Formation.

Erie Creek Stock

The Erie Creek stock is a light grey quartz monzonite with an aplitic texture. Four sub-types with complex cross-cutting relationships between types and molybdenum mineralization have been noted.

Dikes

Dikes of quartz-feldspar porphyry of various textures are abundant

on the property, much more so than indicated on the accompanying maps. They range in width from several centimetres to about 20 metres. In general, they trend north-south ($\pm 30^\circ$) and have steep dips. Numerous phases have been recognized. Age relationships with each other and with mineralization are complex. Most dikes appear to be intramineral and postmineral in age.

The most prevalent dike type is a biotite quartz-feldspar porphyry which in itself has variable proportions of phenocrysts of biotite, quartz and feldspar. Other common readily identifiable dike phases include white quartz porphyry and black basalt dikes.

Alteration

Three main alteration types have been mapped.

- 1) Biotite hornfels is apparently a contact metamorphic effect related to both the Nelson batholith and the Erie Creek dike swarm. It is developed mainly in argillite and siltstone.
- 2) Weak quartz-sericite-pyrite alteration occurs in envelopes along and adjacent to fractures and molybdenite-quartz veins.
- 3) Chlorite occurs mainly on fractures and in shear veins in augite andesite and hornfels.

Mineralization

Mineralization on the Erie Creek property occurs roughly in four concentric zones.

- 1) An inner quartz-molybdenite + scheelite zone is approximately 600 metres in diameter and is centered on the east side of Erie Creek. Host rocks are quartz monzonite dikes and stock, and white rhyolite. Grades in the zone range from 96 to 590 parts per million molybdenum, 166 to 1960 parts per million copper and 50 to 1400 parts per million tungsten. Best results reported by McIntyre Porcupine Mines were 85 metres of 0.115% MoS_2 and 0.05% Cu (including 30 metres of 1.2 ounces per ton silver).
- 2) Chalcopyrite occurs over an area of 1.5 to 2 kilometres, both in and around the molybdenite zone. Chalcopyrite occurs in quartz and sulphide veinlets, as fracture coatings, and in shear veins with pyrite, pyrrhotite and minor amounts of scheelite. Best copper

values were obtained up to 1.3% from vein and dump samples mainly on the west side of Erie Creek.

- 3) Pyrite and pyrrhotite occur finely disseminated and as fracture coatings in and around the molybdenite-chalcopyrite zone, over an area of about 1.5 by 2.5 kilometres.
- 4) Sphalerite and galena along with some gold occur in shear veins beyond the molybdenite zone. They are found on the Arnold, St. Louis, Ben Hassen and Rosa reverted crown grant claims.

The distribution of gold and silver appears to be erratic. McIntyre Porcupine Mines reported a 30 metre composite in drill hole 69-5 that assays 1.2 ounces per ton silver. Elsewhere, silver values up to 90 parts per million (2.6 ounces per ton) are reported by AMAX from the shear veins mentioned above. Gold values of up to 620 parts per billion (0.017 ounces per ton) are also reported.

GEOCHEMISTRY

Previous Work

Results of soil and rock geochemical sampling by AMAX are summarized on Figures 5a to 5f. The following data reinforces the zoning pattern already described above:

- 1) A molybdenum soil anomaly 700 metres in diameter centered east of Erie Creek.
- 2) A tungsten anomaly about 1.2 kilometres in diameter which overlaps the molybdenum anomaly.
- 3) A copper soil anomaly which is two kilometres in diameter.
- 4) Lead and zinc soil anomaly patterns occur beyond the copper anomalies.
- 5) Silver values are anomalous (0.8-2.4 ppm) mainly in the extreme northwest part of the sampled area. Elsewhere, reconnaissance sampling has revealed several clusters of silver anomalies in soil (0.8 to 2.8 ppm with one anomalous value of 10.6 ppm obtained in the southwestern corner of the claim group) that warrant follow-up.

Recent Work

Since acquiring the property in 1985, Kootenay King Resources Inc. has undertaken prospecting and geochemical sampling with the view of determining its precious metal potential. Results of this work are summarized below.

In 1985, most of the available drill core pulps on storage at Rossbacher Laboratory Ltd. were selected and analyzed for gold. Samples were analyzed to investigate whether or not gold values are present in the molybdenum-tungsten zone. Except for a few scattered anomalous values of 20 to 30 parts per billion, only two significant values of 180 and 350 parts per billion (0.005 and 0.01 ounces per ton) were obtained from the interval 162 to 170 feet (2.4 metres). In this interval Parry (1980) reports the presence of chlorite-actinolite veins up to 15 centimetres wide containing up to 10% pyrrhotite and locally 1% chalcopyrite. Several samples taken by the writer (Figure 6) from the copper-tungsten zone were analyzed for gold and found to be slightly anomalous (up to 70 parts per billion).

In 1986, a prospecting program was carried out on the Erie Creek property. An attempt was made to locate and sample as many of the old prospect pits, trenches and adits as possible. A total of 58 rock samples were collected. Most were a series of grab samples or rock chip samples collected from float, dumps and outcrop. Samples were shipped to Acme Analytical Laboratories and analyzed for gold and silver by standard atomic absorption techniques. Selected samples were fire assayed for gold and silver. Sample sites are plotted on Figure 7 and analytical results presented in Appendix II. Results of sampling reveal a low but significant range of gold and silver values. Approximately one third of the samples contain anomalous gold (greater than 10 parts per billion) and silver (greater than 1.5 parts per million). Of particular interest are gold values of 0.01 to 0.045 ounces obtained from quartz veins on the Ben Hassan claim in the eastern part of the claim group, and silver values of up to 7.8 ounces per ton.

In 1987 a flagged grid was established in the northwestern part of the property (June 3 claim) to cover some of the known copper bearing

shear veins. Lines were run with compass and hip chain and B horizon soil samples were collected at 50 metre intervals along the lines. Samples were placed in Kraft paper bags and shipped to Rossbacher Laboratory Ltd. Gold determinations were made by standard atomic absorption techniques. Samples were then shipped to Acme Analytical Laboratories Ltd. for 30 element determinations by inductively coupled plasma (I.C.P.) spectrometry.

Results of soil sampling conducted in 1987 are presented in Appendix II and a statistical summary of selected elements are presented in Appendix III. Sample sites and silver, arsenic, copper, lead, zinc, and gold values are plotted on Figures 6a to 6f.

Inspection of the statistical summaries and plots shows very high background values of silver, lead and zinc in soils, particularly in the northeastern part of the grid area. The anomalous areas, in part, appear to be spatially related to some of the known shafts and adits, although they extend well beyond.

Gold values are generally uniformly low although a number of scattered isolated gold values ranging from 20 to 410 parts per billion occur throughout the grid area.

Of potential interest as gold targets are two areas of moderately anomalous arsenic values (greater than 20 parts per million with peaks ranging from 35 to 395 parts per million). One is a north trending belt through the silver-lead-zinc anomalous area and the other a northeast trending belt in the southwest part of the survey grid.

Scattered clusters of anomalous copper values (100 to 907 parts per million) occur throughout the grid. One highly anomalous value of 19713 parts per million (1.97%) presumably is related to a nearby copper-bearing pyritic shear zone.

DISCUSSION OF RESULTS

Although gold values obtained to date on the Erie Creek property are generally low, two gold targets requiring further evaluation have been identified:

- (1) on the Ben Hassan claim, gold values in the range of 0.01 to 0.045 ounces per ton have been obtained on quartz veins, and
- (2) in the 1987 grid area, a number of scattered isolated gold anomalies in and around two irregular belts of arsenic anomalies.

A possible favourable feature of the latter is that one of the arsenic anomalies parallels the sedimentary-volcanic stratigraphic trend.

Also of interest are the widespread silver, lead and zinc anomalies which have not been fully delineated. They occur in an area underlain by volcanic and sedimentary rocks which are intruded by a lobe of the Nelson batholith and by dikes of the Erie Creek dike swarm, all of which are favorable hosts for a variety of base and precious metal deposits. Follow-up prospecting, mapping and rock geochemical sampling are warranted to identify their source.