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GEOLOGICAL REPORT  
ON THE  
KILO AND SKYLARK-RANGER GOLD PROPERTIES

Lemon Creek Area  
Slocan Mining Division  
British Columbia

FOR  
KILO GOLD MINES LTD.

BY  
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**SUMMARY**

Kilo Gold Mines Ltd. holds 17 mineral claims which are well located with respect to existing infrastructure in the Slocan Mining Division of southeastern British Columbia. These holdings include the Kilo and Skylark-Ranger gold (+ silver) properties, both of which have potential for the development of reserves containing gold grades which may be sufficient to warrant mining and shipment to nearby milling and/or smelting and refining facilities.

Additional exploration and development work is warranted to adequately assess the potential of the Kilo and Skylark-Ranger properties. A first phase program, including diamond drilling, excavator trenching, rehabilitation of existing underground workings and estimated to cost \$82,750.00, is recommended for the Kilo property because of its relative ease of access and fairly extensive previous development work. A second phase program, with estimated costs of \$100,000.00, and predicated on results obtained from initial phase work, would include more detailed evaluation of the Skylark-Ranger claims.

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## INTRODUCTION

Kilo Gold Mines Ltd. holds 17 full and fractional mineral claims in the southern part of the Slocan mining district in southeastern British Columbia. Central to these holdings, and the subject of this report, are the Kilo and Skylark-Ranger properties consisting of six full and fractional Crown granted mineral claims.

This report, prepared at the request of Mr. Thomas E. Kirk, president of Kilo Gold Mines Ltd., is based on several personal examinations of the subject properties in the mid-1980's and on previous reports prepared by the writer and others on the results of exploration programs carried out between 1984 and 1986.

## LOCATION AND ACCESS

The Kilo and Skylark-Ranger properties are situated 30 km northwest of Nelson in southeastern British Columbia (Figure 1). The mineral claims are immediately north of Chapleau Creek, a tributary of Lemon Creek, 7 km southeast of the municipality of Slocan (Figure 2). Geographic coordinates are  $49^{\circ}44'$ North and longitude  $117^{\circ}23'$ West in NTS map-area 82F/11W.

Access to the properties is by way of 12 km of main and secondary logging roads which leave Provincial highway 6

eight km south of Slocan and extend up Lemon and Chapleau Creeks (Figure 3). The principal workings on the Kilo property are directly accessible by road; a short trail provides access to the Skylark-Ranger property.

The properties are approximately 100 km by secondary road and highway from Cominco Ltd.'s smelting and refining operations at Trail (Figure 2).

#### MINERAL PROPERTY

Mineral claims held by Kilo Gold Mines Ltd. in the Chapleau Creek area, Slocan Mining Division, consist of 17 full and fractional claims comprising 28 mineral claim units (Figure 3). These holdings include the Kilo property of one full and three fractional Crown granted mineral claims and the two Crown granted claims comprising the Skylark-Ranger property which are the subject of this report. Details of these mineral claims are as follows:

<u>Property</u>	<u>Mineral Claim Name</u>	<u>Lot Number</u>
Kilo	Kilo	9328
	Violet Fr.	9329
	Kilo No.2 Fr.	9330
	Wedge Fr.	9331
Skylark-Ranger	Ranger	9332
	Skylark	9333

Other mineral claims held by the Company in the immediate area include the following:

<u>Name of Claim</u>	<u>Record Number</u>	<u>Lot Number</u>	<u>Units</u>
Legal	255668	1512	1
Rita	255669	1513	1
Louise Fr.	255670	1514	1
Goldstream #1	255900		1
Goldstream #2	255901		1
Goldstream #3	255902		1
Goldstream #4	255903		1
Den	256130		12
Kirk 1	256263		1
Kirk 2	256264		1
Time	256445	6515	1

#### **PHYSICAL FEATURES**

The Kilo and Skylark-Ranger mineral claims are situated on the south-facing slope of Chapleau Creek valley (Figure 3). Elevations range from 1370 metres above sea level near Chapleau Creek to 2040 metres in the northeastern part of the Skylark-Ranger property.

Much of the original tree cover has been removed by past logging operations and grassy slopes are prevalent above elevations of 1800 metres.

#### **PREVIOUS WORK**

Initial work on the Kilo, Skylark-Ranger and the several other prospects in the Lemon Creek area now held by the Company was carried out prior to the turn of the century. Principal periods of activity were the early 1900's and the 1930's.

The Kilo property was partially developed by more than 600 metres of underground workings including drifting on six main levels and two sub-levels plus raising and stoping. Only one adit level is currently accessible. Official records indicate that ore shipments were made during 8 years between 1900 and 1939 with totals as follows:

<u>Tonnes Shipped</u>	<u>Gold(g)</u>	<u>Silver(g)</u>	<u>Lead(kg)</u>	<u>Zinc(kg)</u>
2120	29640	27060	48	21

Work in recent years has included prospecting, geochemical sampling and bedrock sampling. Kilo Gold Mines undertook detailed soil sampling programs in 1984 and 1985.

The Skylark-Ranger property was explored by more than 120 metres of underground workings in several adits (all now caved) prior to 1934 when one small ore shipment was made as follows:

<u>Tonnes Shipped</u>	<u>Gold (g)</u>	<u>Silver(g)</u>
2.7	124	10326

Kilo Gold Mines Ltd. conducted soil geochemical surveys, detailed sampling of vein structures and geological mapping of the Skylark-Ranger property in 1985 and 1986.

Recent work on the other claims held by the Company has included limited geochemical and geological programs. A 1938 shipment from the Goldstream claims consisted of 36 tonnes which yielded 684 grams gold and 715 grams silver.

## GEOLOGICAL SETTING AND MINERALIZATION

The Lemon Creek area is near the northwestern margin of the middle to late Jurassic Nelson batholith which is comprised of porphyritic granitic rocks and associated dykes. In the area of the Kilo and Skylark-Ranger properties these granitic rocks are characterized by prominent pink feldspar phenocrysts. Narrow pegmatite and aplite dykes are common. Screens or roof pendants of older volcanic rocks are contained within the granitic rocks on the Skylark-Ranger property.

The Kilo and Skylark-Ranger properties are two of a number of similar gold (+ silver) prospects situated between the south end of Slocan Lake and Kokanee Glacier Park. Gold and silver values are contained in narrow, fissure-filling quartz veins developed in Nelson porphyritic granitic rocks and to a lesser extent, screens or roof pendants within the granitic rocks. Sulphide content within the quartz veins rarely exceeds 10% and consists mainly of pyrite with lesser chalcopyrite, galena and sphalerite. These are the Slocan "dry ores" as opposed to the silver-rich near-massive sulphide lodes and veins of the main Slocan camp to the north.

Granitic rocks marginal to gold (+ silver)-bearing quartz veins are variably altered with locally abundant



sericite and pyrite.

On the Kilo property, a northwest-striking, moderately northeast-dipping quartz vein has been partially developed by underground workings over a strike length of more than 100 metres and a vertical range of 70 metres (Figure 4). Where exposed in No.3 adit (the only currently accessible working), the quartz vein has a width of 30 to 60 cm and near the adit face, two parallel quartz veins with widths of 16 and 38 cm are separated by 0.6 metres of intensely sericitized and pyritized granite. Partially oxidized pyrite is the dominant sulphide mineral with lesser galena and sphalerite.

Limited sampling by the writer in 1982 (Figure 4) yielded gold values ranging from trace to 21.8 g/t over 55 cm (0.63 oz/ton over 22 inches). Character samples of dump material and the vein exposed in No.3 adit, collected by others over the past 10 years, have returned values of between 2.2 and 65.5 g/t gold (0.064-1.91 oz/ton) and 4.8 and 96.3 g/t silver (0.14 -2.81 oz/ton). Recovered values from ore shipments from the property are 14 g/t gold (0.41 oz/ton) and 12.8 g/t silver (0.37 oz/ton).

Detailed soil geochemical sampling in the vicinity of the Kilo adits in 1984-85 indicated anomalous gold values (65 - 1750 ppb) over a distance of 150 metres northwest of the uppermost workings. Several sloughed trenches in this area

attest to the probable strike extension of the vein structure in this direction.

The Skylark-Ranger property includes a persistent gold-silver bearing quartz vein which has been traced by geochemical surveys and old adits (caved) and trenches over an apparent strike length of 900 metres within the boundaries of the claims plus an additional 600 metres extending east and west into the surrounding Den claim which is also owned by the Company (Kregosky, 1986; Figure 5).

The quartz vein is mainly restricted to a linear roof pendant of altered Slocan Group sediments within Nelson granitic rocks and consequently may be considered to be stratabound. The vein strikes east-northeast and dips moderately to the north over much of its strike length within the Skylark and Ranger Crown granted claims. Near its apparent eastern limits on the adjacent Den claim, the vein system strikes northerly and dips steeply west (Figure 5).

Exposed vein widths vary from 15 cm to more than 1 metre. Encouraging gold and silver values were obtained by sampling of available bedrock exposures (Kregosky, 1986) over 300 metres of vein strike length. Some of the sampling results are shown on Figure 5; weighted average grades calculated by the writer from Kregosky sampling results include four chip samples over a 40 metre strike length

extending east of Trench 7 (Figure 5) which averaged 24.7 g/t gold (0.721 oz/ton) and 354.2 g/t silver (10.33 oz/ton) over an average width of 36 cm. In the vicinity of Adit 1, some 150 metres east, four chip samples over a 60 metre strike length yielded weighted average grades of 4.6 g/t gold (0.135 oz/ton) and 2201.1 g/t silver (64.20 oz/ton) over an average width of 23 cm. Two grab samples, collected from an area between Trench 7 and Adit 1 yielded values of 15- 16.5 g/t gold (0.438 -0.480 oz/ton) and 345.6-848.2 g/t silver (10.08-24.74 oz/ton).

Beyond the sampled area, anomalous geochemical values in soils (Kregosky,1986) indicate a continuity of altered sediments and contained quartz vein structure over a strike length of at least 1000 metres. Good gold and silver values were obtained in grab samples at a caved adit 200 metres west of the Crown granted claim boundary on the Den claim (Figure 5) and an apparent parallel zone with anomalous silver, lead and zinc values in soils was identified in the northwestern part of the Skylark claim.

#### **PROPERTY POTENTIAL**

While of relatively narrow widths, the quartz veins on the Kilo and Skylark-Ranger properties have demonstrated strike continuity and contain appreciable gold and silver

grades.

That portion of the Kilo vein system which has been developed by underground workings has the potential to contain 28500 tonnes of material based on a strike length of 110 metres, a down-dip extent of 160 metres, a width of 60 cm and an average specific gravity of 2.7. Assuming an average grade of 10.3 g/t gold (0.30 oz/ton), this tonnage may contain 9,400 oz. gold.

A similar exercise by Evans (1986) for the Skylark-Ranger property suggested a potential of 68000 tonnes assuming a strike length of 610 metres, a down-dip extent of 90 metres, an average width of 45 cm and a specific gravity of 2.7. Evans projected a potential 26,000 oz. gold within the vein system based on an assumed average grade of 12 g/t (0.35 oz/ton).

Vein structures on both properties, as noted, are relatively narrow (less than 1 metre) and have moderate dips, both characteristics which could lead some to conclude that they have limited potential. The Elk gold property of Fairfield Minerals Ltd., situated about midway between Merritt and Kelowna in south-central British Columbia, provides an interesting comparison with the Kilo and Skylark-Ranger properties. Gold values on the Elk property are contained principally in narrow quartz veins hosted

by late Jurassic Osprey Lake porphyritic granitic rocks which are of similar age, composition and texture as the Nelson granitic rocks which host the Kilo and Skylark-Ranger vein systems.

Gold-bearing quartz veins on the Elk property rarely exceed 30 cm and vein mineralogy (pyrite, chalcopyrite, galena, free gold) and wallrock alteration (narrow selvages of sericite and pyrite) are similar to the Kilo and Skylark-Ranger properties. Drill-indicated reserves are contained in six shoots within one vein system and total 300000 tonnes grading 22.2 g/t gold (0.647 oz/ton). Reported grades are over a diluted width of 2 metres reflecting the high grade nature of the mineralized shoots within the 30 cm wide quartz vein. Further attesting to the high grade nature of the property are results of a 1992 2,000 ton bulk sample which yielded 8,650 oz. gold.

Nearly half of the drill-indicated gold resource (96,000 oz.) is contained in one shoot which significantly has a shallow dip (25 degrees) for a down-dip distance of 100 metres before steepening to 65 degrees.

There is evidence of steepening of the vein structure along strike immediately east of the Skylark-Ranger property on the Den claim and other, similar gold bearing veins in the south Slocan district are known to have fairly steep dips.

**CONCLUSIONS AND RECOMMENDATIONS**

Results of sampling to date on both the Kilo and Skylark-Ranger properties suggest the possibility of higher grade shoots within the vein structures. Encouraging results to date, coupled with ease of access and proximity to existing infrastructure including a nearby inactive milling facility plus smelting and refining facilities at Trail, render the Kilo and Skylark-Ranger properties attractive prospects for the development of mineable tonnages with reasonably good gold grades.

Additional exploratory work is required to assess the potential of both the Kilo and Skylark-Ranger properties. A two-phase program is proposed, with first phase work directed to the Kilo property in view of its relative ease of access and existing underground workings.

It is recommended that the first phase consist of excavator trenching to extend the known strike length of the gold-bearing vein structure followed by the drilling of a number of short holes to assess the distribution of gold grades within the vein structure. Rehabilitation of existing underground workings is also recommended as part of first phase work.

Second phase work will be partly contingent on results obtained from the initial phase program on the Kilo property.

It is anticipated that at least some work, including diamond drilling, would be directed to further assessment of the Skylark-Ranger vein system plus further investigation of known vein structures on other claims held by the Company in the immediate area.

**COST ESTIMATE**

## Phase I

Diamond Drilling - 400 metres @ \$100/metre	\$40,000.00
Excavator trenching - 5 days x 10 hrs/day x \$125/hr	\$6,250.00
Rehabilitation - Nos. 1 and 2 adit levels	\$7,500.00
Analytical costs	\$3,000.00
Supervision, reporting	\$10,000.00
Miscellaneous travel, living expenses	\$6,000.00
Contingencies	<u>\$10,000.00</u>
Total	\$82,750.00

## Phase II (Contingent on results of Phase I program)

Diamond Drilling, trenching, sampling, etc. \$100,000.00

Total Phases I and II \$182,750.00

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## REFERENCES

- Carter, N.C.(1984): Report on the Kilo Property, Slocan Mining Division, B.C. - private report for Kilo Gold Mines Ltd.
- \_\_\_\_\_ (1986): Geological Report on the You, Kilo, Beaver and Capella Mineral Properties, Alberni and Slocan Mining Divisions, British Columbia, - private report for Kilo Gold Mines Ltd.
- \_\_\_\_\_ (1986): Skylark-Ranger Property, Slocan Mining Division, British Columbia, - letter report dated December 19, 1986 to Kilo Gold Mines Ltd.
- Evans, David S.(1982): Reconnaissance Geochemical Survey, Legal, Rita, Louise Fr. Reverted Crown Grants, Chapleau Creek Area, Slocan Mining Division, BCMEMPR Assessment Report
- (1986): Skylark-Ranger - letter report dated October 25, 1986 to Kilo Gold Mines Ltd.
- Kregosky, R.D.(1986): Report on the Skylark-Ranger Property, Slocan Mining Division, - private report for Kilo Gold Mines Ltd.
- Little, H.W.(1960): Nelson Map-Area, West Half, British Columbia, Geological Survey of Canada Memoir 308
- Maconachie, R.J.(1938): Lode Gold Deposits, Chapleau Creek - Lemon Creek Area, Minister of Mines, B.C., Annual Report 1938, pp. E3-E8
- Orr, John(1971): Mineralogy and Computer-Oriented Study of Mineral Deposits in Slocan City Camp, Nelson Mining Division, British Columbia, M.Sc. Thesis, University of British Columbia

**CERTIFICATE**

I, NICHOLAS C. CARTER, of 1410 Wende Road, Victoria, British Columbia, do hereby certify that:

1. I am a Consulting Geologist registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1966.
2. I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962) and the University of British Columbia with Ph.D.(1974).
3. I have practised my profession in eastern and western Canada for more than 30 years.
4. The foregoing report is based on personal examinations of the Kilo and Skylark-Ranger mineral properties, on previous reports prepared by the writer and on a review of published and unpublished information pertaining to the subject mineral properties.
5. I hold no interest, directly or indirectly, in the Kilo and Skylark-Ranger or adjacent mineral properties or in the securities of Kilo Gold Mines Ltd.
6. Permission is granted to Kilo Gold Mines Ltd. to use this report, as presented, in support of any necessary filings with the Alberta Stock Exchange.

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