GEOLOGICAL ASSESSMENT REPORT

GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORTS

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GOLD KEY CLAIM GROUP KAMLOOPS LAKE AREA KAMLOOPS MINING DIVISION

by

MURRAY S. MORRISON, B.Sc.

<u>CLAIMS</u> :	Golden Lime 1&2, Gold Key 1-14, 16, 17 and Gold Key 15 FR (19 units).
LOCATION:	The Gold Key Claim Group is situated 2 km south of Kamloops
	Lake, 25 km due west of Kamloops, B.C.
	Lat. 50°43'; Long. 120°41';
	N.T.S.: 92-I-10E
<u>OWNER</u> :	Murray Morrison
OPERATOR:	Murray Morrison
DATE STARTED:	March 23, 1995 FILMED
DATE COMPLETED:	May 7, 1995
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Kelowna, B.C.

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TABLE OF CONTENTS

<u>PAGE</u>

Summary	1									
Introduction	4									
Location and Access										
Physical Features and Climate										
Claim Status										
History Regional Cashery and Minemization										
Regional Geology and Mineralization	11									
Property Geology and Mineralization										
Introduction	14									
Summary	14									
Upper Triassic Nicola Group Metasediments (Unit 1)	15									
Late Cretaceous(?), or Early Tertiary(?) Felsic Dykes (Unit 2)										
Late Cretaceous(?), or Early Tertiary(?) Rhyolite(?) Dykes (Unit 2c)										
Structural Geology and Faulting	17									
Alteration and Mineralization										
Gold Key 5 Replacement Zone - Figure 4	19									
Gold Key 1 Shear Zone and Rhyolite Intrusive - Figure 5	24									
Gold Key 7 Rhyolite Dyke - Figure 6	25									
Gold Key 3 Replacement Zone - Figure 7	26									
Lithogeochemical Survey	28									
Discussion	28									
Conclusions and Recommendations	32									
References	34									
Appendix A Lithogeochemical Analyses	36									
Appendix B Statement of Qualifications	37									
Appendix C Statement of Expenditures	38									

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TABLE OF CONTENTS continued

ILLUSTRATIONS

Figure 1	Location Map (British Columbia)	3
Figure 2	Claims and Access	6
Figure 3	Regional Geology - Savona Mercury Belt	13
Figure 4	Geology and Sample Sites	20
	Gold Key 5 Mineral Claim	
Figure 5	Geology and Sample Sites	21
	Gold Key 1 & 2 Mineral Claims	
Figure 6	Geology and Sample Sites	22
	Gold Key 7 & 8 Mineral Claims	
Figure 7	Geology and Sample Sites	23
	Gold Key 3 & 4 Mineral Claims	
Map GK-95	-1 Mineral Claims, Access	in pocket
	Faulting and Replacement Zones	
	Gold Key Claim Group	

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SUMMARY

The Gold Key Claim Group located 2 to 3 km south of Kamloops Lake, or 25 km due west of Kamloops hosts several carbonate/silica replacement zones within Upper Triassic Nicola Group volcano-clastic metasediments. The zones are believed to represent the upper (low temperature) horizons of strong late Cretaceous(?), or Early Tertiary(?) epithermal systems that could contain precious metal values at depth.

The property, owned by the writer, overlies ground previously covered by the Brussels Claim Group. The Brussels Claim Group was explored over a period of eleven years by Placer Development (1981-84), Goldstone Explorations Ltd. (1984-88) and the writer (1989-92).

Placer Development conducted a widely-spaced soil geochemical survey in 1981, and discovered several areas across the property with elevated mercury, arsenic, antimony and gold values. Placer Development carried out limited follow-up work and allowed their option to lapse in 1984. During 1984, lithogeochemical samples collected by Goldstone Explorations Ltd. yielded elevated values for the same elements that were discovered by Placer Development. In 1985 a Reverse Circulation Percussion drilling program carried out by Goldstone Explorations tested five widely separated targets across the property with one drill hole each. Two strong zones of carbonate/silica replacement were drilled over lengths of 80 metres, proving the size and strength of the zones, but precious metal values were found to be negligible and Goldstone Explorations abandoned the property in 1988.

A series of geochemical, geophysical (magnetometer) and geological surveys were conducted over the property by the writer from 1989 until 1992, and five key areas considered worthy of detailed exploration were identified.

A detailed geological mapping and sampling program was conducted over the Golden Lime 1 replacement zone in 1993 and this year four more zones were mapped and sampled in detail.

SUMMARY continued

This year's lithogeochemical sampling proved that only the uppermost horizons of the replacement zones (epithermal systems) have been exposed by erosion and that drilling will be required to test the zones for possible economic precious metal values at moderate depths.

The Newmont Showing, located immediately west of the Gold Key 5 mineral claim, is an example of a precious metal deposit that is associated with a relatively small carbonate replacement zone. A 1 metre wide shear zone at the Newmont Showing has been infilled with late quartz and chalcedony veins which contain 3 g/tonne gold and up to 180 g/tonne silver.

Several of the carbonate/silica replacement zones on the Gold Key Claim Group are much larger than that at the Newmont Showing and four have been selected for a Reverse Circulation Percussion drilling program to test for precious-metal-bearing siliceous stockwork "feeder" zones that could occur below the carbonate replacement zones.



INTRODUCTION

This report, written for government assessment work requirements, discusses the results of a geological study and sampling program carried out over specific mineralized areas on the Gold Key 1, 3, 5 and 7 mineral claims by the writer during March-May, 1995.

The Gold Key 1, 3, 5 and 7 mineral claims make up a portion of the Gold Key Claim Group which is comprised of 19, 2-post mineral claims. The mineral claims are located 2 to 3 km south of Kamloops Lake, 25 km due west of Kamloops, B.C., and they are owned by the writer, M. Morrison, of Kelowna, B.C.

Several zones of highly faulted, carbonate and silica-replaced metasediments of the Triassic Nicola Group lie within the boundaries of the claim group, and these zones have been the focus of attempts to find epithermal precious metal deposits. Sporadic exploration of these replacement zones over a period of 15 years has, so far, yielded only moderately elevated concentrations of gold, silver, mercury, arsenic and antimony.

In 1993 a large replacement zone on the Golden Lime 1 mineral claim of the Gold Key Claim Group was mapped and sampled in detail (Morrison, 1993). This year, replacement zones on the Gold Key 1, 3, 5 and 7 mineral claims were selected for a special study and sampling program in an effort to delineate drill targets on the large property.

The regions studied and sites sampled are displayed at a scale of 1:2500 on Figures 4-7, accompanying this report, while Map GK-95-1, drawn at a scale of 1:5000, illustrates the position of the replacement zones with respect to area faulting and mineral claim boundaries.

The ICP values for the 30 elements analyzed for each of the 15 samples collected are listed in Appendix A.

LOCATION AND ACCESS

The Gold Key Claim Group lies 2 to 3 km south of Kamloops Lake, or 1 to 2 km south of the Trans-Canada Highway, 25 km due west of Kamloops, B.C. (Lat. 50°43'; Long. 120°41'; N.T.S. Map 92-I-10E). Access to the property is via a segment of old highway which leaves the Trans-Canada Highway at a point 32 km west of Kamloops, or 3 km southeast of the Savona Highway Lookout. An access road runs south 1 km from the old highway to the Gold Key Claim Group and several dirt roads give access to most areas of the Claim Group as illustrated on the Map GK-95-1.



PHYSICAL FEATURES AND CLIMATE

The Gold Key Claim Group with an average elevation of 600 metres above sea level lies 2 to 3 km south of Kamloops Lake (350m elv.). The property features low relief with rounded rocky ridges and shallow, gravel-filled valleys. An exception to the rolling topography is a 150 metre bluff which crosses the eastern side of the property from northwest to southeast.

Vegetation on the property is typical of that of the bunch grass and sagebrush-covered hills that surround Kamloops Lake. Large Ponderosa pine also dot the landscape, while Douglas fir are restricted to thick groves on northeastern slopes where moisture is better retained.

The climate immediately adjacent Kamloops Lake is semi-arid. Precipitation equals less than 30 cm per year; much of it falling as late spring rain. The winter snow pack rarely exceeds 25 cm, and generally covers the property from late November until early March.

Several small lakes, deepened by the building of earthen dams, supply water for grazing cattle during summer months. One of the larger lakes is Brussels Lake, located on the Gold Key 3 & 4 mineral claims.

CLAIM STATUS

The Gold Key Claim Group is comprised of 18 contiguous 2-post mineral claims and one fractional mineral claim all staked and owned by the writer, M. Morrison of Kelowna, B.C. The mineral claims are located near Savona, B.C. in the Kamloops Mining Division and are listed in the Table that follows:

CLAIM NAME	<u>UNITS</u>	DATE OF <u>RECORD</u>	TENURE <u>NUMBER</u>	MINING DIVISION	EXPIRY* DATE
Golden Lime	1 1	Mar. 16/81	216982	Kamloops	Mar. 16/97
Golden Lime	2 1	Mar. 16/81	216983	Kamloops	Mar. 16/97
Gold Key 1	1	May 15/94	325691	Kamloops	May 15/97
Gold Key 2	1	May 15/94	325692	Kamloops	May 15/97
Gold Key 3	1	May 15/94	325693	Kamloops	May 15/97
Gold Key 4	1	May 15/94	325694	Kamloops	May 15/97
Gold Key 5	1	May 15/94	325695	Kamloops	May 15/97
Gold Key 6	1	May 15/94	325696	Kamloops	May 15/97
Gold Key 7	1	May 15/94	325697	Kamloops	May 15/97
Gold Key 8	1	May 15/94	325698	Kamloops	May 15/97
Gold Key 9	1	Mar. 22/95	334413	Kamloops	Mar. 22/96
Gold Key 10	1	Mar. 22/95	334414	Kamloops	Mar. 22/96
Gold Key 11	1	Mar. 22/95	334415	Kamloops	Mar. 22/96
Gold Key 12	1	Mar. 22/95	334416	Kamloops	Mar. 22/96
Gold Key 13	1	Mar. 22/95	334417	Kamloops	Mar. 22/96
Gold Key 14	1	Mar. 22/95	334418	Kamloops	Mar. 22/96
Gold Key 15	FR. 1	Mar. 24/95	334805	Kamloops	Mar. 24/96
Gold Key 16	1	May 7/95	335438	Kamloops	May 7/96
Gold Key 17	1	May 7/95	335439	Kamloops	May 7/96

Note: the new Expiry Date is based on the acceptance of this report for Assessment Work Credits.

CLAIM STATUS continued

It should be recognized that the northwest corner of the Gold Key 5 mineral claim overlaps ground covered by the pre-existing Sprout 89 mineral claim, that the northwest corner of the Gold Key 11 mineral claim overlaps a portion of the Sprout 944 mineral claim, and that the northwest corner of the Gold Key 16 mineral claim overlaps a portion of the Sprout 941 mineral claim (see Map GK-95-1).

The Sprout mineral claims do not belong to the writer.

HISTORY

The Golden Lime 1 & 2 and Brussels 1-11 mineral claims (now partially covered by the Gold Key 1-17 mineral claims) were staked by the writer in March and April 1981 to cover several large rusty carbonate/silica replacement zones found within Nicola Group rocks during routine prospecting.

The ground was transferred to Placer Development Ltd. soon after staking and during 1981 crews from Placer Development Ltd. conducted a widely spaced (25×100 to 250 metre) soil geochemical survey over the central portion of the property. Elements typical of epithermal systems (mercury, antimony and arsenic) were found to occur in moderate concentrations on the Brussels 3 & 4 mineral claims, and gold was found on the Brussels 1 & 3 mineral claims, but no drilling was done by Placer Development Ltd. and the mineral claims were returned to the writer in April, 1984.

The property was next optioned to Goldstone Exploration Ltd. of Vancouver in May 1984, and during May 1985 Goldstone Exploration conducted a widely spaced reverse circulation percussion drill program across the Brussels property (see drill hole locations on Map GK-95-1). Drill holes 85-1 and 85-4 encountered up to 80 metres of intensely carbonate and/or silica replaced Nicola metasediments, but no significant precious metal values were encountered during the drill program and in 1988 Goldstone Exploration allowed their option to lapse.

Since 1989 the writer has conducted a series of geochemical, geophysical (magnetometer) and geological surveys over portions of the Golden Lime 1 & 2 and Brussels 1-11 mineral claims in an attempt to develop drill targets on the property (see References).

The Brussels Claim Group was allowed to lapse in 1992, and portions of the ground have subsequently been restarted as the Gold Key 1-17 mineral claims by the writer in 1994 & 95.

REGIONAL GEOLOGY AND MINERALIZATION

The Savona Mercury Belt, illustrated on Figure 3 accompanying this report, extends 50 km from Criss Creek on the North, to Tunkwa Lake on the South. Several of the historic mercury occurrences are located within a 15 km radius of Savona near the western end of Kamloops Lake.

The map indicates that the mercury prospects occur within either Upper Triassic Nicola Group or Cretaceous(?) metavolcanics and metasediments that lie in close proximity to the Copper Creek Intrusions.

The mercury showings are all associated with carbonate replacement zones within highly faulted country rock. The mercury content at the Savona mercury prospects is generally much less than 0.1%, and non-economic. However, it is the large size of some of the carbonate replacement zones and the intensity of repeated faulting that suggests that the mercury prospects could represent the upper horizons of strong epithermal systems which could host precious metal deposits at depth.

Precious metals and base metals have been found within chalcedony and quartz veins cutting some of the replacement zones in the region, suggesting that at least some of the replacement zones do represent strong Late Cretaceous or Early Tertiary mineralized epithermal systems. Gold, in particular, has been found within quartz veins at Criss Creek (see Figure 3).

The Newmont Showing, discovered by Newmont Exploration geologists in 1982, immediately west of the Gold Key 5 mineral claim, represents another example of precious metal and base metal mineralization that occurs within sheared chalcedony and quartz veins associated with a carbonate replacement zone within Nicola Group metasediments. Sulphide minerals at the Newmont Showing include pyrite, galena, stibnite, sphalerite, arsenopyrite and tetrahedrite.

REGIONAL GEOLOGY AND MINERALIZATION continued

Another occurrence of anomalous gold (1755 ppb) and arsenic (400 ppm) values associated with a carbonate replacement zone is located on the Gold Key 2 mineral claim on a steep bluff above RCDH 83-5 (see Figure 5).



PROPERTY GEOLOGY AND MINERALIZATION

Introduction

The Gold Key Claim Group overlies portions of ground previously covered by the Brussels Claim Group as mentioned earlier in this report. During 1991 and 1992 the geology of the Brussels Claim Group was mapped at a scale of 1:2500 of the writer (Morrison, 1991&92) and much of the geological data contained within this report was obtained during the earlier mapping programs.

The Gold Key 1, 3, 5 and 7 mineral claim replacement zones selected for special study and sampling this year are illustrated on Figures 4-7 accompanying this report. A discussion with regard to the sampling of these zones will follow a description of the property geology in general.

<u>Summary</u>

The Gold Key Claim Group is underlain by Upper Triassic Nicola Group metasediments comprised of volcano-clastic conglomerates with minor sandstone and siltstone interbeds. The metasediments (metamorphosed to the green-schist facies) appear to occur as a monoclinal sequence which crosses the property at an average 145 degrees. The metasediments dip vertically to steeply east, east of the Main Valley Fault, and moderately southwest, west of the Main Valley Fault. A broad drift-filled valley crossing the property in a northwesterly direction is believed to define the Main Valley Fault which separates the easterly dipping metasediments from the westerly dipping metasediments.

Late Cretaceous(?) or Early Tertiary(?), discordant, felsic dykes, with or without quartz-eye phenocrysts, intrude the metasediments at many locations across the property. Moderate to strong carbonate and/or silica replacement of the conglomerates and sandstones occurs adjacent the felsic dykes. Both the country rocks and the felsic dykes are often faulted and cut by 1 to 5%, banded, ankerite, dolomite, chalcedony and quartz veins. The felsic dykes are also often altered to pink carbonates, clay minerals and 10% pore space.

Summary continued

A light green, highly siliceous, amorphous rock (possibly rhyolite) occurs as late dykes or irregular zones within the most intensely faulted replacement zones.

The most intensely faulted replacement zone on the property is located on the Golden Lime 1 mineral claim. This zone (the subject of a 1993 detailed study) falls within a northeaststriking fault zone which has been called the "Brussels Fault Zone" in earlier reports by the writer (Morrison, 1990, 1991). It is expected that the Brussels Fault Zone has allowed for the intrusion of felsic dykes, and that it has also served as a conduit for the hydrothermal solutions believed to have been responsible for the intense replacement of the metasediments on the Golden Lime 1 mineral claim.

The Brussels Fault Zone has been projected 550 metres southwest of the Main Golden Lime Replacement Zone by the writer (Morrison, 1990) to include the Newmont Showing where precious metal values are associated with base metals in a narrow quartz/chalcedony breccia zone which cuts through carbonate-replaced Nicola Group metasediments.

Upper Triassic Nicola Group Metasediments (Unit 1)

Upper Triassic Nicola Group Metasediments, comprised of conglomerates predominantly, underlie the entire Gold Key Claim Group. They are made up of Nicola Group volcanic clasts of andesite and basalt. The most common clasts are dark green augite andesite and light grey plagioclase microphenocryst andesite. The subrounded to subangular clasts range from pebble, to cobble, to boulder size and are set in a matrix of 40% coarse sand.

Locally the conglomerates are poorly sorted and massive, but on the eastern side of the property pebble and cobble conglomerates are interbedded with ½ to 1 metre sandstone and siltstone beds.

Upper Triassic Nicola Group Metasediments (Unit 1) continued

The sandstones and siltstones are dark green to black and are also comprised of volcanoclastic material.

The conglomerates are more highly indurated west of the Main Valley Fault than they are to the east.

All of the metasediments are metamorphosed to the greenschist facies and chlorite and epidote are the dominant minerals of both the matrix particles and clasts.

Late Cretaceous(?), or Early Tertiary(?) Felsic Dykes (Unit 2)

Late Cretaceous(?) or Early Tertiary(?) felsic dykes intrude faulted metasediments at scattered locations across the property. Many of the dykes are poorly exposed, or highly altered and difficult to distinguish from the rocks they intrude. There appears to be a general north and northwest strike of the narrow (5 to 10 metre wide) dykes.

The dykes are made up of fine to medium crystals of orthoclase feldspar (80%) and muscovite (15%) with or without (0 to 5%) quartz-eye phenocrysts, 0.2 to 1 cm.

The dykes are most often highly altered to pink carbonates, clay, and 10% pore space, with or without, the quartz-eye phenocrysts.

The dykes are sheared by faulting and often cut by up to 5% late ankerite, dolomite, chalcedony and quartz veinlets like the metasediments they intrude.

Late Cretaceous(?), or Early Tertiary(?) Rhyolite(?) Dykes (Unit 2c)

Dykes and irregular zones of a light green, highly siliceous, amorphous rock (possibly rhyolite) cut carbonate replacement zones at several locations across the property. The rhyolite(?) dykes appear to be later than the felsic dykes although the two are often intimately associated.

Structural Geology and Faulting

The structural geology of the Gold Key Claim Group is not clear. Only minor sandstone or siltstone units are interbedded within the massive conglomerates and attitudes of the metasediments are often difficult to determine. Many of the thin-bedded sediments have been disturbed. In general, the metasediments appear to strike at an average 145 degrees across the property. East of the Main Valley Fault, the dips are very steep to the southwest or northeast, or vertical. West of the Main Valley Fault, the dips are moderate to the southwest.

The mapped geology suggests that the Nicola Group metasediments are made up of a monoclinal sequence (rather than an anticline) and that the difference in dip angles from steeply northeast, east of the Main Valley Fault, to moderately southwest, west of the Main Valley Fault, might be accounted for by rotation along the fault.

A second major fault, "the Brussels Fault Zone" (Morrison, 1990) is inferred to cross the Gold Key Claim Group at 050 degrees. The Brussels Fault Zone is considered to be an early fault. It is believed to have provided a conduit for the felsic intrusions and associated hydrothermal solutions that brought about the intense replacement of the metasediments by carbonate and silica on the Golden Lime 1 mineral claim.

The Brussels Fault Zone is believed to have been offset approximately 75 metres to the north, east of the Main Valley Fault.

Structural Geology and Faulting continued

The Brussels Fault Zone is comprised of many replacement zones that all show evidence of repeated faulting and brecciation.

Alteration and Mineralization

Several zones of carbonate alteration and replacement of Nicola Group metasediments occur on the Gold Key Claim Group. The carbonate alteration demonstrates a close spacial relationship with Late Cretaceous(?), or Early Tertiary(?) felsic dyking and is most probably genetically related. Felsic dykes have not been recognized at all alteration zones, but all of the felsic dykes that have been mapped have carbonate alteration haloes. The felsic dykes themselves are often highly altered to pink carbonates, clays and pore space making them difficult to distinguish from metasediments. A prolonged period of post-intrusive hydrothermal activity is indicated.

The felsic dykes are often faulted and cut by banded ankerite, dolomite, quartz and chalcedony veinlets (up to 5%) like the metasediments they intrude.

The metasediments display all degrees of carbonate alteration from weak to intense. Weakly carbonate altered rocks are light pink and weather rusty, and they are cut by 1 to 2% banded carbonate and silica veinlets. The original rock texture is recognizable. Intense alteration zones are often cut by 5 to 10% banded ankerite, dolomite, chalcedony and quartz veinlets and the original constituents of the rock have been totally replaced by ankerite (up to 70%) and/or silica (sometimes up to 90%). The ankerite replacement zones are pink to white and weather rusty. The silica replacement zones are light green, to white, to grey and do not discolour with weathering. The original texture of the rock is barely discernible within the zones of total replacement.

Gold Key 5 Replacement Zone - Figure 4

The Gold Key 5 Replacement Zone illustrated on Figure 4 lies just 150 metres east of the Newmont Showing. The Gold Key 5 zone is comprised of conglomerates and minor sandstone interbeds of the Nicola Group that have been moderately to highly replaced with ankerite. There appears to be the same close association of carbonate replacement with quartz-eye felsic dyking as there is elsewhere on the Gold Key Claim Group, although only one portion of a dyke has been recognized at the northeast corner of the zone so far.

The replacement zone appears to lie within a segment of the Brussels Fault Zone that has been displaced to the south by late north-south faulting (see Figure 4).

Drill hole RCDH 85-4 of the 1985 drilling program was drilled at minus 80 degrees, 322 degrees azimuth, to a depth of 92 metres. The drill hole encountered 30 metres of strong carbonate replacement, followed by 55 metres of moderate carbonate replacement of Nicola Group metasediments. No significant precious metal values were obtained, but arsenic values ranged up to 258 parts per million (ppm) over 3 metres.

It appears, in hindsight, that the drill hole may have parallelled some of the vein and bedding structures on the property that are now known to strike at 155 degrees, and that a new drill test of the zone would be warranted.

The Newmont Showing immediately west of the Gold Key 5 mineral claim has yielded gold values up to 3 g/tonne and silver values up to 180 g/tonne from a 1 metre wide shear zone that has been infilled with quartz and chalcedony veins. Minerals visible at the Newmont Showing include pyrite, galena sphalerite, stibuite chalcopyrite and tetrahedrite.





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Figure No. 4







Figure No. 5







LEGEND

EARLY TERTIARY ? or LATE CRETACEOUS ?

- 2 Felsic Intrusives
 - 2a greater than 2% quartz eyes
 - 2b highly altered
 - 2c rhyolite

UPPER TRIASSIC - NICOLA GROUP

- 1 Volcanoclastic sediments (andesitic clasts predominantly)
 - 1a bouider conglomerate
 - 1b cobble congiomerate
 - 1c pebble conglomerate
 - 1d sandstone
 - 1e siltstone

CARBONATE ALTERATION

- weak moderate strong

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SYMBOLS

outcrop angular float, talus bedding, joints foliation, faulting veins, shear zones contacts

ABBREVIATIONS

alabican propisi st	ltered nkerite recciated arbonate alterat actured yrite uartz uartz licified light ein	ion	50	100 m
		S	cale 1:2,500	
		h	han.	uner
		GOLD K	(EY GRC	OUP
	GEC GOL)LOGY & D KEY 7 & Kamloo Kamloops Mi	SAMPL 8 MINER ps Lake Are ning Divisio	E SITES AL CLAIMS Da Mn, B.C.
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	AUGU	ST 1995	Fig	ure No. 6



ABBREVIATIONS ałt'd

ank px,q carb fr'd ру

qtz

sil

sil

٧N



Kamloops Lake Area Kamloops Mining Division, B.C.

Drawn by: M.M.

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N.T.S. 92-1-10E Figure No. 7

Gold Key 5 Replacement Zone - Figure 4 continued

Three samples collected from the Gold Key 5 zone and illustrated on Figure 4 are described below:

<u>Sample GK-01</u>: rock chips for this sample were collected from a 10 to 20 cm thick composite vein cutting carbonate replaced sandstone. The vein is made up of 90% ankerite/dolomite of several phases and 10% quartz.

<u>Sample GK-02</u>: rock chips were picked from a sandstone unit which is 90% replaced by ankerite/dolomite, 5% by quartz and 2% by mariposite.

<u>Sample GK-03</u>: rock chips for this sample were collected from a 10 to 15 cm thick composite vein comprised of 95% ankerite/dolomite and 1-3% late quartz veinlets.

The three samples contained negligible gold and arsenic values, and only slightly elevated (25-35 ppm) antimony values (see Appendix A).

Gold Key 1 Shear Zone and Rhyolite Intrusive - Figure 5

Steep ridges of rusty rock associated with the Bluff Fault Zone cross the Gold Key 1 & 2 mineral claims (see Figure 5) and a rhyolite intrusive plug, also occurring within the fault zone, appears to be related to the strong carbonate replacement that occurs on the bluffs (Morrison, 1991).

The light green rhyolite is fine grained to amorphous with occasional quartz eyes to 3mm in size. The rhyolite is generally well fractured, locally faulted, and displays both regular and highly contorted banding. The rock contains a trace of finely disseminated pyrite.

Gold Key 1 Shear Zone and Rhyolite Intrusive - Figure 5 continued

<u>Sample GK-15</u> was collected from several sites across the rhyolite outcrop. The sample contained low values for most elements.

A 1 metre wide breccia zone occurs on the south bank of a creek near the northeastern border of the Gold Key 1 mineral claim. The zone made up of intensely brecciated rhyolite with ankerite, quartz and chalcedony veining is exposed for a length of 30 metres. The zone, which strikes at 75 degrees and dips nearly vertical separates a quartz-eye felsic dyke on the northeast from carbonate-replaced conglomerates on the southwest.

<u>Sample GK-13</u> was collected over a 2 metre length near the western end of the breccia zone. The sample was comprised of brecciated rhyolite dyke material with up to 20% late chalcedony veins up to 2 cm. in size. The veins, like the dyke material, were highly brecciated. The sample material contained 1/2% pyrite, a trace of tetrahedrite and malachite.

<u>Sample GK-14</u> was collected over a 4 metre length near the eastern end of the brecciated rhyolite zone. The sample contained banded and brecciated rhyolite with 1/2% pyrite and 1% limonite. The bands are highly contorted at the sample site.

Samples GK-13 & 14 contained slightly elevated arsenic values (90 and 60 ppm, respectively).

Gold Key 7 Rhyolite Dyke - Figure 6

A 20 metre wide highly siliceous rhyolite dyke cuts through Nicola Group conglomerates near the western side of the Gold Key 7 mineral claim (see Figure 6). The dyke which has been largely replaced by late silica is poorly exposed over a length of 35 metres.

Three samples of the dyke material were collected from the sites illustrated on Figure 6.

Gold Key 7 Rhyolite Dyke - Figure 6 continued

<u>Sample GK-04</u>: rock chips for this sample were collected from a $1 \ge 1$ metre area of the dyke that contained 1/2 to 1% cinnabar. The sampled material was almost entirely replaced with late silica (70%). Late quartz and chalcedony veinlets made up 20% of the rock, while pore spaces equalled 5% and iron oxides 5%. This sample yielded elevated arsenic (210 ppm) and antimony (55 ppm) values.

<u>Sample GK-05</u>: the sample of dyke material making up sample GK-05 was like that of sample GK-04 in all respects except that it did not contain visible cinnabar. The sample yielded moderately elevated arsenic (145 ppm) and antimony (25 ppm) values.

Sample GK-06: the rock chips making up sample GK-06 were again like those of GK-04 & 05 except that the iron oxide content was less (3%). Sample GK-06 yielded modest arsenic (90 ppm) and antimony (35 ppm) values.

Gold Key 3 Replacement Zone - Figure 7

An east-west/near vertical, 4 metre wide breccia zone crosses the northern portion of the Gold Key 3 mineral claim 100 metres east of Brussels Lake (see Figure 7). Rock lying immediately to the south of the breccia zone is made up of both carbonate-replaced Nicola Group metasediments and felsic quartz-eye dyke material. There is no well exposed rock on the north side of the breccia zone.

The material of the breccia zone represents several phases of veining and brecciation and it is comprised of 70 to 95% ankerite and 5 to 30% quartz.

<u>Sample GK-07</u> was collected over a 4 metre width near the western end of the exposed breccia zone. The sample contained 95% white ankerite and 5% late quartz and chalcedony veins.

Gold Key 3 Replacement Zone - Figure 7 continued

Sample GK-08, collected near the west-central region of the exposed breccia zone contained 80% ankerite and 20% quartz veins up to 4 cm. in size.

<u>Sample GK-09</u> was collected near the east-central region of the exposed breccia zone. It was made up of 70% white ankerite and 30% silica with some white quartz and grey chalcedony veinlets.

<u>Sample GK-10</u> was collected over a distance of 10 metres at the eastern end of the exposed breccia zone. The sample contained 90% ankerite and 10% quartz and chalcedony veinlets.

<u>Sample GK-11</u> was collected from a 3 metre zone of highly faulted, 100% carbonate-replaced conglomerate(?) near the road on the Gold Key 3 mineral claim. The sample contained 1% pyrite and 3% limonite (after pyrite?) in pockets throughout the rock.

<u>Sample GK-12</u> was collected from a site 300 metres east of the breccia zone near the eastern border of the Gold Key 3 mineral claim. A poorly exposed $1/2 \times 1$ m outcrop yielded the sample that was comprised of conglomerate that was almost entirely replaced by silica. The brecciated rock contained 1% pyrite and was cut by 2% chalcedony veinlets. The sample contained anomalous gold (175 parts per billion) and arsenic (415 ppm).

Samples GK 7-10 contained elevated barium (up to 830 ppm) only, while sample GK-11 contained moderately elevated arsenic (130 ppm) (see Appendix A).

LITHOGEOCHEMICAL SURVEY

Fifteen lithogeochemical samples were collected during the geological examination of specific areas on the Gold Key Claim Group during March-May, 1995.

Approximately 2 kg of rock was collected for each sample and several rock chips were broken from bedrock to make up each sample. The sample sites are illustrated on Figures 4-7 accompanying this report.

The samples were delivered to Eco-Tech Laboratories in Kamloops for standard 30 element ICP and gold geochem analysis.

The samples were crushed to - 10 mesh using jaw and cone crushers and then a 250 g split sample was ring pulverized to approximately -140 mesh. A measure of the -140 mesh material was digested in Aqua Regia and analyzed by ICP. Fire Assay and Atomic Absorption was used for the gold analysis.

The analytical results are listed in Appendix A.

DISCUSSION

It has been demonstrated over the years that there is a close association between faulting, late intrusive activity and the strong carbonate/silica replacement zones on the Gold Key Claim Group (see Map GK-95-1).

It is apparent that the Bluff Fault Zone, Main Valley Fault Zone and the Brussels Fault Zone have had a role in the development of all of the larger carbonate/silica replacement zones on the property. The intersection of the Brussels Fault Zone with northerly-striking fault zones, in particular, has resulted in some of the strongest replacement zones (eg. Golden Line 1 Showing and Gold Key 5 Showing).

DISCUSSION continued

It is thought that the late faults, cutting through the metasediments of the Triassic Nicola Group, have allowed for the intrusion of the Late Cretaceous(?) or Early Tertiary(?) felsic quartz-eye and amorphous rhyolite dykes and plugs. These high-level intrusions are believed to have been very volatile and it is thought that large volumes of hydrothermal solutions passing through the intruded metasediments have replaced the original mineral constituents with carbonate and/or silica. The degree of replacement has been governed not only by the degree of faulting and nearness to the intrusive activity, but also by the inherent porosity of the rock.

There is ample evidence at many sites across the property that there was repeated faulting and repeated introduction of hydrothermal solutions (ie. there are several phases of banded veining, brecciation, and mending by later veining).

It is thought that the highly volatile solutions brought with them elevated levels of mercury, arsenic, barium and antimony at many locations across the property. It is also believed that gold and silver were introduced into the carbonate replacement zones with late silica-rich phases of hydrothermal solutions, and that the precious metals at the Newmont Showing represent just such a situation.

After several years of study, it is believed that the main geological features of the Gold Key Claim Group are now fairly well understood. It is thought that at least some of the larger carbonate/silica replacement zones may have quartz-chalcedony stockwork "roots", and that some of these stockworks could host economic concentrations of precious metals. The Newmont Showing, although restricted in size, serves as an example of the type of mineralogy that might be found within the stockwork systems.

DISCUSSION continued

The mapping and sampling of the Golden Lime 1 replacement zone in 1993 and the Gold Key 1,3,5 and 7 replacement zones this year demonstrates that only the uppermost levels of each replacement zone has been eroded. The lithogeochemical analysis of several of these zones yielded elevated arsenic and antimony values typical of the highest levels of epithermal systems. Mercury content, although not analyzed this year, would be expected to be high also (eg. the rhyolite dyke on the Gold Key 7 mineral claim contains up to 1% cinnabar locally).

All five of the main replacement zones illustrated on Map GK-95-1 merit testing at depth with a drilling program. Any one of the replacement zones could be expected to have a precious-metal-bearing quartz stockwork feeder zone associated with it. It is recognized, in hindsight, that the 1985 drill holes were misdirected in seeking-out the roots of the epithermal systems. However, the drill holes did confirm the presence of large volumes of carbonate/silica replaced rock, and the strength of the epithermal systems in general.

Four drill sites have been selected from the six replacement/breccia zones listed below. The drill sites have been listed in order of priority as follows:

Golden Lime 1 Replacement Zone

Two inclined (-45°) drill holes should be drilled from north to south to depths of 60 metres to intercept the siliceous breccia zone that is exposed at the northern end of the carbonate replacement zone.

This drill site features very easy access.

DISCUSSION continued

Gold Key 5 Replacement Zone

Two inclined (-45°) drill holes should be drilled at 225 degrees azimuth (perpendicular to veining and bedding) to depths of 60 metres to test the Gold Key 5 replacement zone.

This zone is located just 150 metres from the Newmont precious - metal-bearing showing.

Gold Key 7 Replacement Zone

Two inclined (-45°) drill holes should be drilled from northwest to southwest to 60 metres depth to test the mineral content of the highly siliceous rhyolite dyke. The dyke contains up to 1% cinnabar and elevated arsenic and antimony values on surface.

Gold Key 3 Replacement Zone

Two inclined (-45°) drill holes should be drilled from north to south to depths of 60 metres to test the ankeritic-siliceous breccia zone that is exposed at surface.

Sample Site GK-12

The poorly exposed highly siliceous rock at site GK-12 yielded 175 ppb gold and 415 ppm arsenic values. This site warrants further exploration with a trenching program.

Gold Key 1 Breccia Zone

The well developed breccia zone on the Gold Key 1 mineral claim is more difficult to access than others on the property. Drilling of this zone should await positive results elsewhere on the property.

CONCLUSIONS AND RECOMMENDATIONS

This year's detailed geological mapping and sampling program was focussed on four specific carbonate/silica replacement zones located within the Gold Key Claim Group. The four zones were selected for special study following several years of exploration efforts conducted on the Brussels Claim Group which previously covered the ground.

It has been determined over the years that the large replacement zones occurring within metasediments of the Triassic Nicola Group on the Gold Key Claim Group are related to Late Cretaceous(?) or Early Tertiary(?) intrusives, and that the emplacement of these intrusives has been controlled by late faulting.

It is hypothesized that hydrothermal solutions related to the high-level, volatile intrusives have penetrated the faulted or inherently porous metasediments and have brought about the high degree of carbonate and silica replacement of the original mineral constituents. It is thought that these same hydrothermal solutions have introduced elevated levels of mercury, arsenic, barium and antimony into the metasediments.

There is evidence of repeated faulting of the rock and the repeated introduction of hydrothermal solutions into the rock. There is also evidence that the later phases were more siliceous, and at the Newmont Showing (located immediately west of the Gold Key 5 mineral claim) gold and silver were deposited with late quartz and chalcedony veining.

This year's mapping and sampling program was designed to prioritize and delineate drill targets at four of the larger replacement zones on the Gold Key Claim Group. It is believed that any one of these four zones or the large Golden Lime Zone, mapped in 1993 by the writer, could host epithermal precious metal deposits at moderate depths within quartz/chalcedony stockwork systems hidden below the exposed carbonate replacement zones.

Several easily accessible drill sites have been selected (see Discussion) and a low-cost Reverse Circulation Percussion Drilling Program is recommended to test for economic precious metals at moderate depths at all sites.

CONCLUSIONS AND RECOMMENDATIONS continued

All drill chips from replacement zones or stockwork systems should be analyzed for gold, silver, arsenic, antimony and barium.

August 10, 1995 Kelowna, B.C.

Murray Morrison, B.Sc.

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APPENDIX A

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LITHOGEOCHEMICAL ANALYSES

7-Jun-95

ECO-TECH LABORATORIES LTD. 10041 East Trans Canada Highway KAMLOOPS, B.C. V2C 2J3

Phone: 604-573-5700 Fax : 604-573-4557

Values in ppm unless otherwise reported

Murray Morrison AK 95-291 684 Balsam Road Kelowna, B.C. V1W 1B9

15 rock samples received May 29, 1995 PROJECT #:None Given

<u>Et #</u>	. Tag #	Au(ppb)	Ag	AI %	As	Ba	Bi	Ca %	Cď	Co	Cr	Cu	Fe %	La	Mg %	Mn	Мо	Na %	Ni	Р	Pb	Sb	Sn	Sr	Ti %	U	v	w	Y	7n
1	GK1	5	<.2	0.06	5	65	<5	> 15	<1	20	49	10	2.35	<10	12.30	474	<1	<.01	148	<10	<2	35	<20	3429	< 01	<10	04	<10	<1	14
2	GK2	5	<.2	0.07	15	80	<5	14.60	<1	25	119	10	2.78	<10	12.10	954	<1	<.01	221	30	22	35	<20	2562	< 01	<10	40	<10	~1	17
3	GK3	5	<.2	0.06	<5	<5	10	> 15	<1	28	9	3	3.49	<10	12.00	814	<1	<.01	174	<10	12	25	<20	3199	< 01	<10	172	<10	~1	34
4	GK4	5	<.2	0.34	210	315	<5	0.35	<1	18	83	99	1.25	<10	0.18	51	2	<.01	14	50	8	55	<20	56	< 01	<10	31	<10	<1	J 4 Q
5	GK5	5	<.2	0.30	145	400	<5	0.27	<1	31	131	83	1.92	<10	0.10	269	<1	<.01	31	130	4	25	<20	30	<.01	<10	44	<10	<1	80
6	GK6	5	<.2	0.34	90	560	<5	0.04	<1	10	127	64	0.87	<10	0.02	70	2	<.01	15	80	4	35	20-	17	<.01	<10	17	<10	<1	8
7	GK7	5	<.2	0.07	30	100	5	> 15	<1	3	32	4	3.29	<10	8.77	875	<1	0.01	<1	20	<2	30	<20	254	< 01	<10	30	<10	<1	48
8	GK8	5	<.2	0.06	5	495	<5	13.40	<1	<1	66	4	2.53	<10	6.35	693	<1	0.01	<1	20	<2	25	<20	195	< 01	<10	28	<10	<1	38
9	GK9	5	<.2	0.16	15	610	10	> 15	<1	8	20	18	4.00	<10	6.74	1105	<1	0.01	4	150	<2	25	<20	369	< 01	<10	80	<10	<1	65
10	GK10	5	<.2	0.23	20	830	<5	13.90	<1	7	36	32	4.16	<10	6.06	1076	<1	0.01	5	120	<2	25	<20	329	<.01	<10	103	<10	<1	64
11	GK11	5	<.2	0.36	130	375	<5	7.83	<1	18	50	70	4.31	<10	2.69	917	<1	<.01	10	370	<2	15	<20	169	<.01	<10	107	<10	<1	52
12	GK12	175	0.4	0.22	415	110	10	12.40	<1	12	19	21	4.07	<10	5.47	1220	<1	0.01	6	150	<2	25	<20	277	<.01	<10	53	<10	<1	73
13	GK13	5	0.4	0.28	90	185	<5	4.53	<1	14	98	29	2.72	<10	2.83	953	<1	0.02	88	200	16	15	<20	415	< 01	<10	33	<10	1	59
14	GK14	5	0.2	0.27	60	170	<5	3.01	<1	9	90	64	1.85	<10	1.55	707	<1	0.02	68	140	14	15	<20	280	< 01	<10	21	<10	2	29
15	GK15	5	<.2	0.24	<5	240	<5	0.50	<1	<1	72	2	0.20	<10	0.08	341	<1	0.02	2	70	16	<5	<20	46	<.01	<10	<1	<10	3	10
QC/E	DATA:																													
Repe	oat #:																													
1	GK1	5	<.2	0.06	10	60	<5	> 15	<1	20	48	6	2.38	<10	12.50	483	<1	<.01	149	10	<2	40	<20	3510	< 01	<10	95	<10	<1	14
10	GK10	-	<.2	0.22	25	870	<5	13.90	<1	6	35	33	4.16	<10	6.06	1080	<1	0.01	7	130	<2	25	<20	335	<.01	<10	103	<10	<1	61
Resp	vit:																													
1	GK1	5	<.2	0.07	5	70	<5	> 15	<1	20	51	6	2.37	<10	12.40	481	<1	<.01	150	<10	<2	40	<20	3538	<.01	<10	95	<10	<1	14
Stan	dard:																													
GEO		150	1.2	1.78	65	150	<5	1.85	<1	17	53	85	3.64	<10	0.89	662	<1	0.02	24	690	22	<5	<20	57	0.10	<10	71	<10	5	76

Page 1

- 36A -

APPENDIX B

STATEMENT OF OUALIFICATIONS

I, Murray Morrison, of the City of Kelowna, in the Province of British Columbia, do hereby state that:

- I graduated from the University of British Columbia in 1969 with a B.Sc. Degree in Geology.
- I have been working in all phases of mining exploration in Canada for the past twenty-five years.
- 3. During the past twenty-five years, I have intermittently held responsible positions as a geologist with various mineral exploration companies in Canada.
- 4. I have conducted several geological, geochemical, and geophysical surveys on mineral properties in Southern British Columbia during the past twenty-five years.
- 5. I conducted the Geological & Lithochemical programs on the Gold Key Claim Group.
- 6. I own a 100% interest in the Golden Lime 1-2, Gold Key 1-14, 16&17 and 15 FR mineral claims.

Murray Morrison - B.Sc.

August 10, 1995 Kelowna, B.C.

APPENDIX C

STATEMENT OF EXPENDITURES - ON THE GOLD KEY CLAIM GROUP

Statement of Expenditures in connection with a Geological Program carried out on the Gold Key Claim Group, located 25 km west of Kamloops, B.C. (N.T.S. Map 92-I-10E) for the year 1995.

GEOLOGICAL & LITHOGEOCHEMICAL SURVEY

M. Morrison, geologist	3 days @ \$250.00/day	\$ 7	50
Truck, 4 x 4 (including gasoline and insurance)	3 days @ \$75.00/day	2	25
Meals and Lodging	3 days @ \$70.00/day		10
15 rock chip samples analyzed for 30 elements by ICP and for gold by AA	30 elements @ \$19.80 each	_2	<u>97</u>
	Sub-total:	\$ 1,4	-82
REPORT PREPARATION COSTS			
M. Morrison, geologist	1½ days @ \$250.00/day	\$3	75
Drafting			53
Typing		1	.23
Copying reports			<u>20</u>
	Sub-total:	\$ 5	571

Grand Total: \$ 2.053

I hereby certify that the preceding statement is a true statement of monies expended in connection with the Geological Program carried out March 23 - May 7, 1995.

Murray Morrison - Geologist

August 10, 1995 Kelowna, B.C.



ASSAYING GEOCHEMISTRY ANALYTICAL CHEMISTRY ENVIRONMENTAL TESTING

10041 E. Trans Canada Hwy., R.R. #2, Kamloops. B.C. V2C 2J3 Phone (604) 573-5700 Fax (604) 573-4557

INVOICE

MUR 684 I Kelov V1W	RAY MORRISON Balsam Road wna, B.C. 189		DATE:	7-Jun-95
			INVOICE: #	<u>AK291</u>
<u></u>	ANALYSIS	PRICE / EACH		
15	SAMPLE PREP. (ROCK)	4.25		63.75
15 15	AU GEOCHEM ICP (28 ELEMENT)	8.00 6.25		120.00 93.75
			SUBTOTAL :	277.50
			& 7% G.S.T.	19.43
	то	TAL AMOUNT DUE & PAYABLE UP	ON RECEIPT: \$	296.93

THANK YOU !

G.S.T. REGISTRATION NUMBER R101565356



TERMS : NET 30 DAYS. INTEREST AT RATE OF 1-1/2% PER MONTH (18% ANNUM) WILL BE CHARGED ON OVERDUE ACCOUNTS.

- 38A -

