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# GEOLOGICAL, GEOPHYSICAL AND GEOCHEMICAL REPORT

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ON THE

## MOUSE MOUNTAIN PROPERTY

Cariboo Mining Division British Columbia

FOR

QUESNEL MINES LIMITED

BY

J.M. KOWALCHUK, B.Sc. F.G.A.C. CURRENT JULY 1987.

### SUMMARY

Quesnel Mines Ltd. (formerly Beaver Lake Mines Ltd.) holds an option on 10 claims (172 units), 12 km east of Quesnel, on the Barkerville Highway. Access to the area is excellent along old logging and mining roads.

The property has been staked and prospected on and off for the last 30 years, with the discovery of copper mineralization in the early 1950's. The main thrust of exploration was in the late 1960's to mid 1970's when the ground was drilled for it's possible porphyry copper potential. Very few companies bothered to assay core and rock samples for gold although what assays were taken indicated that this copper deposit carried gold values ranging up to 0.04 oz/t.

In 1985, Beaver Lake Mines Ltd. was formed and the property was acquired. The company 1s in the process of changing its name from Beaver Lake Mines Limited to Quesnel Mines Limited. Trenching and sampling of zones of copper mineralization resulted in gold values ranging from 0.03 to 0.33 oz/t gold and 0.1 to 2.42% copper. A magnetometer survey outlined a large zone of extensive hydrothermal soil coincident with alteration anomalous copper geochemistry. Within this zone, 1986 trench sampling intersections of outlined large low grade qold mineralization.

The Mouse Mountain property has an excellent potential for a large tonnage, low grade copper-gold bulk tonnage deposit. Along large north-south structures within the property, there also exists the potential for shear hosted, massive sulphide, precious metal mineralization, similar to that at the QR deposit of Dome Mines, approximately 20 km to the south and the Ahbau Creek deposits of Gabriel Resources Inc., 10 kilometers to the north. All three properties lie within Takla basalt intruded by monzonite plugs.

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### INTRODUCTION

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In 1986 and 1987, Quesnel Mines Ltd. acquired ten claim blocks on Mouse Mountain, 12 km north-east of Quesnel. This property, extensively explored in the 1960's and the 1970's for porphyry copper mineralization, was found to also contain large volumes of low grade gold mineralization along with the copper.

This report summarizes the geology, geochemistry and geophysical features of the property; making some conclusions on the economic potential of the ground and recommending a program to test these potential areas and block out possible ore reserves.

### LOCATION AND ACCESS

The Mouse Mountain claims are located on NTS map sheet 93 G/l (Figure 1) and are situated 12 kilometers northeast of the town of Quesnel, B.C. along the Barkerville Highway. The property is easily accessible off the highway via farming and logging roads and trails. The Old Barkerville Road also crosses the property.

#### MINERAL PROPERTY AND OWNERSHIP

The property consists of 10 Modified Grid claims, totalling 172 units. Disposition of the claims is shown on Figure 2. The detailed claim information is noted in the following table:

NAME OF CLAIM	UNITS	RECORD NUMBER	EXPIRY DATE
Mouse	20	7405	March 18
Mouse 2	20	7406	March 18
Excel 2	15	7692	June 4
Excel 3	15	7693	June 4
Lyn l	20	7898	August 22
Excel 5	15	7899	August 28
Mtn.	15	7941	Sept. 8
Mtn 2	· 12	7987	Sept. 29
Beaver 1	20	8250	Feb. 3
Beaver 2	20	8249	March 9
Totals	172 units		

The property is held 100% by Quesnel Mines Limited under option agreements from various prospectors.

#### TOPOGRAPHY AND VEGETATION

The property is situated within the extensive interior physiographic plateau known as the Fraser Basin. The topography of the claim area is a glaciated and stream eroded plateau which displays a gentle relief, situated between the Cottonwood and Quesnel Rivers. The maximum relief is about 275 meters, from the highest to the lowest points on the property. The average elevation on the Meuse Mountain claims is about 914 meters.

Vegetation consists of a mixture of coniferous and deciduous trees as well as cleared agricultural land. The coniferous stands are dominated by spruce, fir and cedar trees while birch and poplar trees dominate the lower lying wetter areas.

#### HISTORY

The search for lode gold deposits, in the Cariboo, has been an ongoing event, since the discovery of placer gold in Barkerville. The rise in gold prices in the late 1970's and early 1980's sparked another gold rush in the area, which resulted in the discovery of the QR Deposit owned by Dome Mines, located 20 km to the south and containing a reported 950,000 tons grading 0.21 oz/ton Au, and the Ahbau Creek gold deposit owned by Gabriel Resources, which reported 70 meters of massive sulphide mineralization grading 0.8% Cu and 0.3 oz/ton Au over 1.5 meters. The increase in gold price also renewed interest in the gold content of the various porphyry copper deposits in the area, in particular, Cariboo Bell, 30 km. to the south, which has a reported 100 million tons of 0.36% Cu and 0.015 oz/ton Au.

Exploration history on the property is guite sketchy as few records were kept and little assessment work was recorded. Interest in the area probably started in the early 1950's when copper minerals were noted in outcrop along the edge of the old Barkerville Highway, marking the location of a significant surface showing. There is some evidence of hand pits and prospector shafts in this area. The age of this work is not known.

In 1955 - 1956, a carload of hand-eorted ore, averaging 5.5% Cu, 0.05 oz./ton Au and 0.5 oz/ton Ag was shipped to the Tacoma smelter.

In 1967, Euclid Mining Corporation planned to heap-leach the main showing and some preparatory work was undertaken, including the testing of a pilot leach process, before the operation was terminated later that year due to lack of funding. No records are available regarding this work.

In 1970, Bethlehem Copper drilled 14 percussion drill holes, intersecting 100-200 feet of greater than 0.10% copper in several holes. They did not assay for gold.

In 1974, Hudson Bay Oil and Gas conducted soil geochemical surveys on the property with analyses for copper, zinc, lead, silver and molybdenum. Gold was not analyzed.

In 1975, DuPont of Canada Limited drilled 5 percussion holes in the north end of the property. These holes intersected up to 320 feet of disseminated sulphides containing similar amounts of copper as the Bethlehem holes and andmalous amounts of gold.

Diamond drilling was carried out on the property, however, information regarding results or location of drill holes is not available.

Geophysics was also conducted on the property. No information is available for any of this data.

First Nuclear Corporation acquired the property in 1981 and compiled much of the earlier information. They did some soil sampling and magnetic surveys south of the previous gridded areas, and analyzed for copper and molybdenum. A grid of panned soil samples located one to two flakes of gold in some of the pans, however no trains of anomalous gold were located. A rock geochemical survey did identify a relationship between gold mineralization and copper mineralization, however only 17 samples were taken. First Nuclear surrendered the property in 1984.

Quesnel Mines Limited acquired the property in 1986, and since then have done some limited trenching and sampling (Figure 4). Recently they have completed a magnetometer survey and VLF EM survey over a portion of the property. The soil geochemistry and ground geophysics along with the areas of percussion drilling are summarized in the compilation map, Figure 5.

### GEOLOGY AND MINERALIZATION

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The Mouse Mountain Property lies within the Quesnel Trough, a subdivision of the intermontane tectonic belt. Quesnel Trough, a northwest trending belt extending from north of Kamloops to north-central British Columbia, is comprised principally of Late Triassic-Early Jurassic Takla Group basic to intermediate volcanic flows and pyroclastic rocks and argillaceous sedimentary rocks.

In the Quesnel area, Quesnel Trough Mesozoic rocks are in fault contact on the east and west with late Precambrian metasedimentary rocks and Paleozoic sediments and volcanics respectively. Early Tertiary sediments and volcanics overlie older rock along the Cottonwood and Quesnel Rivers(Figure 3).

Takla Group layered rocks are intruded by coeval alkalic stocks and plugs and by Early Cretaceous quartz monzonite and diorite which also intrude older layered rocks to the east.

Northwest block faulting is the dominant structural style of the region.

Several styles of economic mineralization are recognized in the Quesnel Trough, including copper-gold porphyry deposits developed in alkalic intrusive complexes (Cariboo Bell), massive sulphide filled shear deposits, adjacent to these alkalic complexes (Ahbau Creek and QR) and possible stratabound copper gold mineralization (the newly discovered QR stratabound deposit).

No detailed geological mapping has been done on the Mouse Mountain Property as yet, so information has been extracted from the limited trench and road cut information as well as interpreted from the ground magnetics. The property is 90 % covered by a thin layer of glacial till and moraine. Rock exposures suggest underlain that the property is by Takla mafic pyroclastics intruded by subvolcanic monzonites and sygnites. The boundaries of the monzonite are extremely brecciated suggesting an explosive emplacement. These hydrothermal breccias have undergone extensive alteration, ranging from propyllitic through potassic to extreme saussuritic. Chalcopyrite and pyrite coat the many fractures of this explosion breccia resulting in copper assays ranging from 0.1% to 2.42% and gold assays ranging from trace to 0.33 oz/ton. The trench sample information is tabulated in Table 1.

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TABLE 1

SAMPLE#	WIDTH LOCATION		ASSAYS (oz/ton)		
	(feet)	(on map)	Cu(%)	Au	Ag
1316	10	1	1.01	0.045	0.086
1317	4	2	0.35	0.032	0.010
1313	12	3	0.38	0.038	0.032
1314	6	4	0.34	0.032	0.042
1312	16	<b>5</b> ·	0.52	0.042	0.074
1307	grab	<b>6</b> ·	2.42	0.114	0.252
1315	100 soil	7	0.16	0.005	0.010
2753	16	8	0.46	0.010	.1ppm
2754	7	9 -	0.44	0.020	.1ppm
2755	7	10	0.19	0.004	.1ppm
2756	grab	11	0.28	0.33	.1ppm

#### CONCLUSIONS

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The Mouse Mountain Property of Quesnel Mines Limited shows many of the same features as seen in surrounding major gold properties of the Quesnel Trough. Mafic volcanic rocks intruded by a subvolcanic monzonite plug, resulting in both porphyry and shear hosted copper gold mineralization is a feature at QR, Ahbau Creek and Cariboo Bell which is also present at Mouse Mountain.

The potential for porphyry copper-gold mineralization similar to Cariboo Bell as well as massive sulphide hosted copper-gold mineralization similar to QR is a real possibility.

#### RECOMMENDATIONS

A two stage program is recommended for this property. The first stage will involve soil geochemistry and an IP Survey to further define targets in the large hydrothermally altered zones outlined by the magnetics. These targets will be surface tested with trenching. A second stage will involve 1,200 meters of diamond drill testing of the mineralized zones. This program will cost \$200,000 for the two stages.

It is felt that with this program, there is a good chance of outlining an economic copper-gold deposit.

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## COST ESTIMATES

## PHASE 1

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IP Survey	10km.	\$13,000
Line cutting	10km.	3,000
Surface trenching	12 days	10,000
Analyses	-	
300 rocks		6,000
500 soils		7,500
Geology and supervisi	on	10,000
Sampler		2,000
Report preparation		5,000
Camp and other contin	gencies	3,500

# \$60,000

# PHASE 2

TOTAL (Phase 2)			\$140,000
Camp and other contingencies			8,000
Report			8,000
Sampling			1,000
Supervision and logg	ing		6,000
Analyses	500	samples	10,000
Site Preparation			7,000
Diamond Drilling	1200	m.	\$100,000

GRAND TOTAL (Phase 1 and Phase 2) \$200,000



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#### REFERENCES

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Carter, N.C., 1985: Geological Report on the Government Creek, Yardley Lake and Ahbau Properties, Cariboo Mining Division, for Gabriel Resources Inc.

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Stewart J.P., 1984: Physical and Geochemical Assessment Report on the Mouse Mountain MM1 Mineral Claim, Cariboo Mining Division, for First Nuclear Corp. Ltd., Dept. of Mines and Petroleum Resources Assessment Report 12,742

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### STATEMENT OF QUALIFICATIONS

I, JOHN M. KOWALCHUK, do hereby certify that:

- 1. I am a Consulting Geologist, resident at 3086 Mariner Way, Coquitlam, British Columbia.
- 2. I am a graduate of Mc Master University, Hamilton, Ontario, with a B.Sc. in geology in 1970.
- 3. I am a Fellow of the Geological Association of Canada.
- 4. I have practiced my profession across Canada over the past 18 years.
- 5. This report is based on several visits to the property and the review of several unpublished technical reports filed as assessment work over the last 20 years.
- 6. I have no direct or indirect interest in the Mouse Mountain Property or in Quesnel Mines Limited.
- 7. Permission is hereby granted to Quesnel Mines Limited to use this report in support of any filing statement, Statement of Material Facts or Prospectus to be filed with the Office of the Superintendent of Brokers for the Province of British Columbia and the Vancouver Stock Exchange.

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Vancouver, B.C. June 16,1987.

# JAMES M. DAWSON, P. ENG.

Geologist



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October 22, 1987

Quesnel Mines Ltd., Suite 302, 242 Reid Street, QUESNEL, British Columbia V2J 2M2

Dear Sirs:

**REGARDING:** Mouse Mountain

At your request, I examined the Mouse Mountain property on October 1, 1987 in the company of Mr. Werner Streicek and Mr. Bill McWilliam.

The property has been known since the 1950s, and has been explored intermittently as a porphyry copper prospect. The discovery of the QR Deposit, some 50 kilometers to the southeast of Mouse Mountain in a similar geologic setting, has generated renewed interest in the property.

The Mouse Mountain property consists of a large rectangular claim block comprising 172 units or 4300 hectares. It is underlain principally by volcanic flows and fragmental units of the Takla Group intruded by a co-magmatic alkaline stock. Older rocks may be in fault contact with this Upper Triassic / Lower Jurassic package in the extreme east and west portions of the claim block.

Typical porphyry-type, disseminated and fracture-controlled pyrite/chalcopyrite mineralization is exposed at a number of places within or adjacent to the centrally located alkaline stock. Previous drilling and surface sampling has demonstrated copper values in the 0.1 to 0.2% range in shallow drill holes. Low-grade gold values usually occur with the copper mineralization. Sampling by J. Kowalchuk returned values ranging from 0.1 to 1% copper and trace to 0.3 ounces gold per ton. The writer took thirteen character samples of various types of mineralization and results ranged from 95 to 10,246 ppm (1.02%) copper and 12 to 980 ppb (0.029 ounces per ton) gold.

All of the past and present work has been carried out near and within the alkaline stock, and specifically around areas of known copper mineralization. While there is some potential for the development of a low-grade bulk mineable copper deposit of the Afton type (that is, with significant precious metal credits), the best potential for a viable mining operation lies in the possible discovery of a QR-type, disseminated gold deposit. Such a deposit would not be found in the immediate vicinity of the alkaline stock, but rather in the zone of propylitic alteration at some distance out in the intruded country rocks.

...cont'd

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October 22, 1987

Quesnel Mines Ltd., Quesnel, British Columbia

The Mouse Mountain property has not been geologically mapped, so the extent of various rock types and alteration zones is not known. Similarly, there has not been any widespread soil geochemical surveys. Such preliminary surveys are necessary before any more detailed work such as trenching or induced polarization surveys are performed. By doing geological mapping and selective geochemical surveys over the entire property, it will be possible to isolate those areas where more detailed (and more costly) work should be done.

In summary, this is a large property in the right geological environment to host a QRtype gold deposit. By carrying out a well managed exploration program in the proper sequence, there is an excellent chance of delineating significant gold mineralization.

Yours truly,

DAWSON GEOLOGICAL CONSULTANTS LTD.

James M. Dawson, P.Eng. President

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