

PROSPECTING AND GEOLOGICAL REPORT  
ON THE  
GEM GROUP

(GM 1-4, GEM ONE and GEM TWO MINERAL CLAIMS)

Latitude: 49° 44' - Longitude: 121° 43' - N.T.S.: 92H/12E

FILMED

NEW WESTMINSTER, M.D.  
CLEAR CREEK - SPUZZUM CREEK AREA

For

FILE NO.	0208
FILED	

FOUNDATION RESOURCES LTD.

548 Beatty Street  
Vancouver, B.C.  
V6B 2L3  
(Owner)

By

J.T. SHEARER, M.Sc., F.G.A.C.  
NEW GLOBAL RESOURCES LTD.

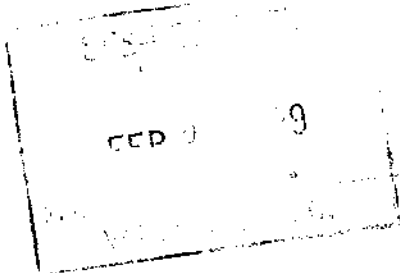
548 Beatty Street  
Vancouver, B.C.  
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January 15, 1989  
Vancouver, B.C.

18,358

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

Fieldwork completed between November 18, 1987 and October 26, 1988



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## SUMMARY

- (1) The GEM Group was located in November, 1987 to cover the well known GEM Molybdenite Deposit.
- (2) The claims are located at the headwaters of Clear and Spuzzum Creeks approximately 48 km north of Harrison Hot Springs and 116 m northeast of Vancouver.
- (3) Access is by four-wheel drive logging roads to the edge of the claim group. A helicopter was used in the 1988 program.
- (4) The general area is underlain by Coast Plutonic Complex and younger intrusives cutting schists and gneisses. The GEM stock is mainly composed of Miocene-age light grey, medium crystalline quartz monzonite roughly 4,000 by 1,800 feet in surface plan.
- (5) The GEM pluton is intruded by a smaller "pipe" of quartz monzonite porphyry breccia. A mixed breccia outcrops along the northeast edge of the quartz monzonite porphyry breccia.
- (6) The area of most intense known molybdenite mineralization is arcuate in shape located around the northeast edge of the quartz monzonite porphyry breccia.
- (7) Rough mineral inventory estimates by Utah personnel using surface diamond drilling results up to 1968 of the mineral inventory exceeding 0.10% MoS<sub>2</sub> is approximately 17,500,000 tons averaging 0.125% MoS<sub>2</sub>. This mineralized material would not be profitable for extraction at current molybdenum prices.

## INTRODUCTION

The GEM group was located in November, 1987 to cover the well known GEM molybdenite deposits.

The extensive exploration work in the past, including underground drifting and 16,450 feet of surface diamond drilling focussed almost exclusively on evaluation of the molybdenum potential of the area. Foundation Resources Ltd. optioned the four GM claims and staked the surrounding Gem claims in November 1987 with the intention of prospecting the general area for related gold mineralization which is commonly peripheral to major, large low-grade porphyry-style copper-molybdenum centers. Minister of Mines Reports from the 1920's refer to free gold being found on both Clear and Spuzzum Creeks. Zonation of gold outward from porphyry deposits has been noted by many workers (Boyle, 1979) and is due in part to the proximity of thermal sources (intrusives) and pressure/temperature gradients within the hydrothermal system. Ring fractures around large breccia bodies can be favourable sites for auriferous mineralization.

Initial silt sampling carried out for Foundation Resources Ltd. returned values up to 205 ppb gold for samples from Power Creek in the central part of the claim block with higher values elsewhere. A small amount of sphalerite, chalcopyrite, pyrrhotite and arsenopyrite were noted in the Utah drill logs. Acicular bismuthinite has been identified lining vugs in quartz veins. Peripheral targets such as lenses of massive pyrrhotite, up to 12 metres long and 1.5 metres wide, hosted by schist on the ridge south of Power Lake require careful examination for possible gold mineralization.

The 1987-1988 prospecting program was of necessity of a preliminary nature in search for potential "outer" gold targets. Future work will concentrate more closely defining the gold-bearing model.

## LOCATION AND ACCESS

The property is located between elevations of 700 meters and 1,200 meters on Clear Creek near the divide with Spuzzum Creek. Clear Creek is a tributary of Big Silver Creek, 48 km north of the community of Harrison Hot Springs, B.C., (or 116 km northwest of Vancouver), Figure 1. The area of activity is about 14 km east of Spuzzum on the TransCanada Highway.

Access is by four-wheel drive road along Clear Creek to the hot springs cabin on the west side of the claims and then by foot or motorcycle to the Utah campsite at Ore Creek, Figures 2 and 3. In 1981, Amax accessed the property via Rene logging company's road up to the headwaters of Spuzzum Creek from which a 1.2 km foot trail runs to the 1981 drill site on upper Clear Creek. Helicopters and four-wheel drive trucks using the Harrison Lake roads were employed in 1988.

Topography in the claim area is rugged with steep rock bluffs and coarse talus slopes dominating the landscape. Thick growth of alder and salmon berry underbrush is common in snow slide chutes.

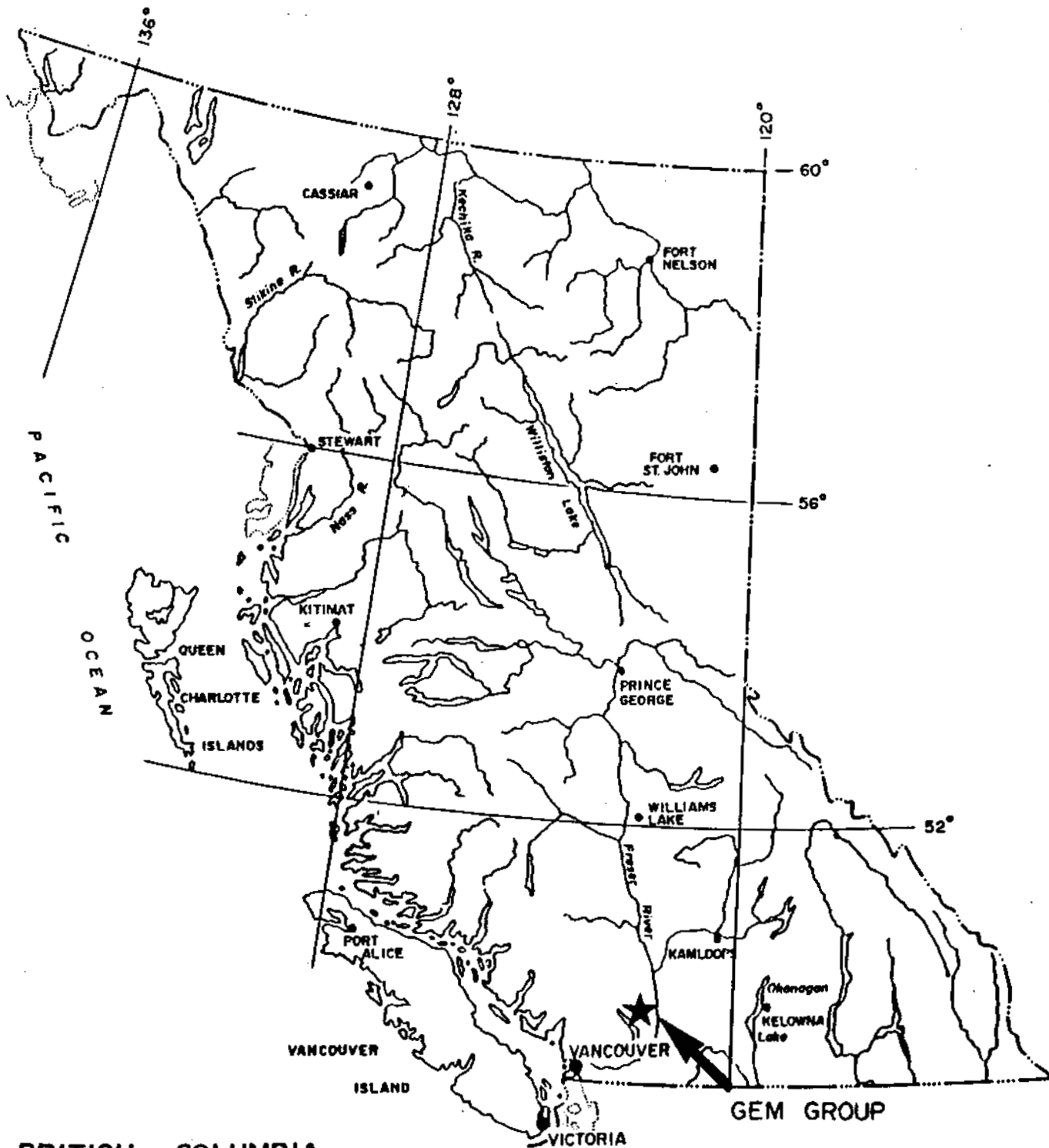
## CLAIM STATUS, LIST OF CLAIMS

The property is partly owned by Foundation Resources Ltd. who have an option from D. Javorsky on the remaining four 2-post claims. The claims are listed in Table 1 and illustrated on Figure 4.

**TABLE 1**  
**List of Claims**


<b>Claim Name</b>	<b>Record Number</b>	<b>Units</b>	<b>Size</b>	<b>Record Date</b>	<b>Expiry Date*</b>
GEM One	3296	18	6N3W	November 18/87	November 18, 1989
GEM Two	3297	18	6N3E	November 18/87	November 18, 1989
GM #1	3287	1	2 post	November 10/87	November 10, 1989
GM #2	3288	1	2 post	November 10/87	November 10, 1989
GM #3	3289	1	2 post	November 10/87	November 10, 1989
GM #4	3290	1	2 post	November 10/87	November 10, 1989

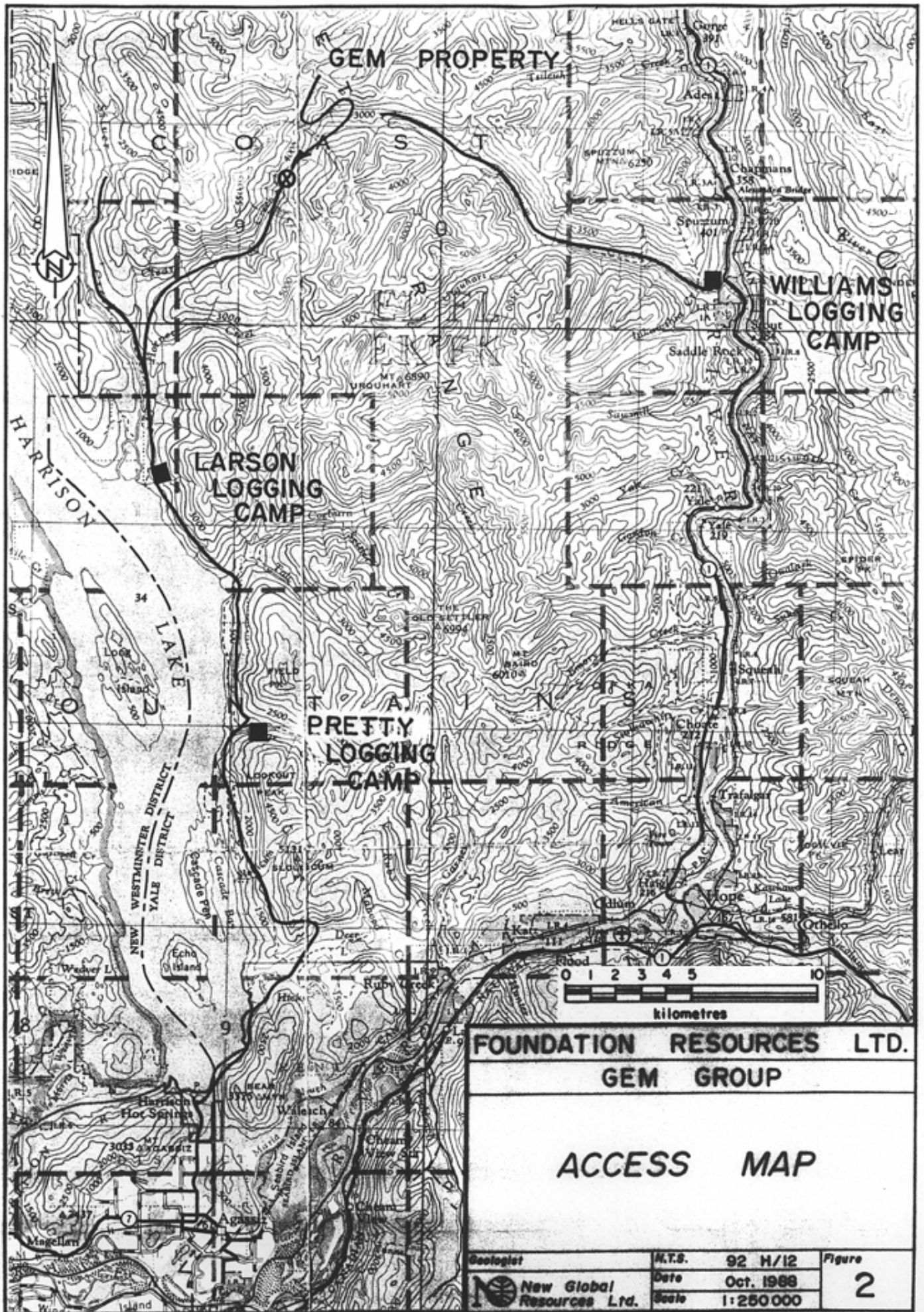
\*after application of 1988 assessment work documented in this report



**BRITISH COLUMBIA**

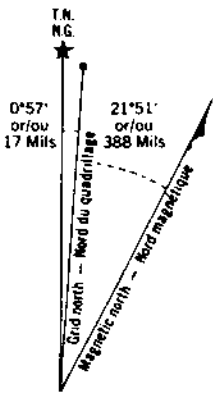
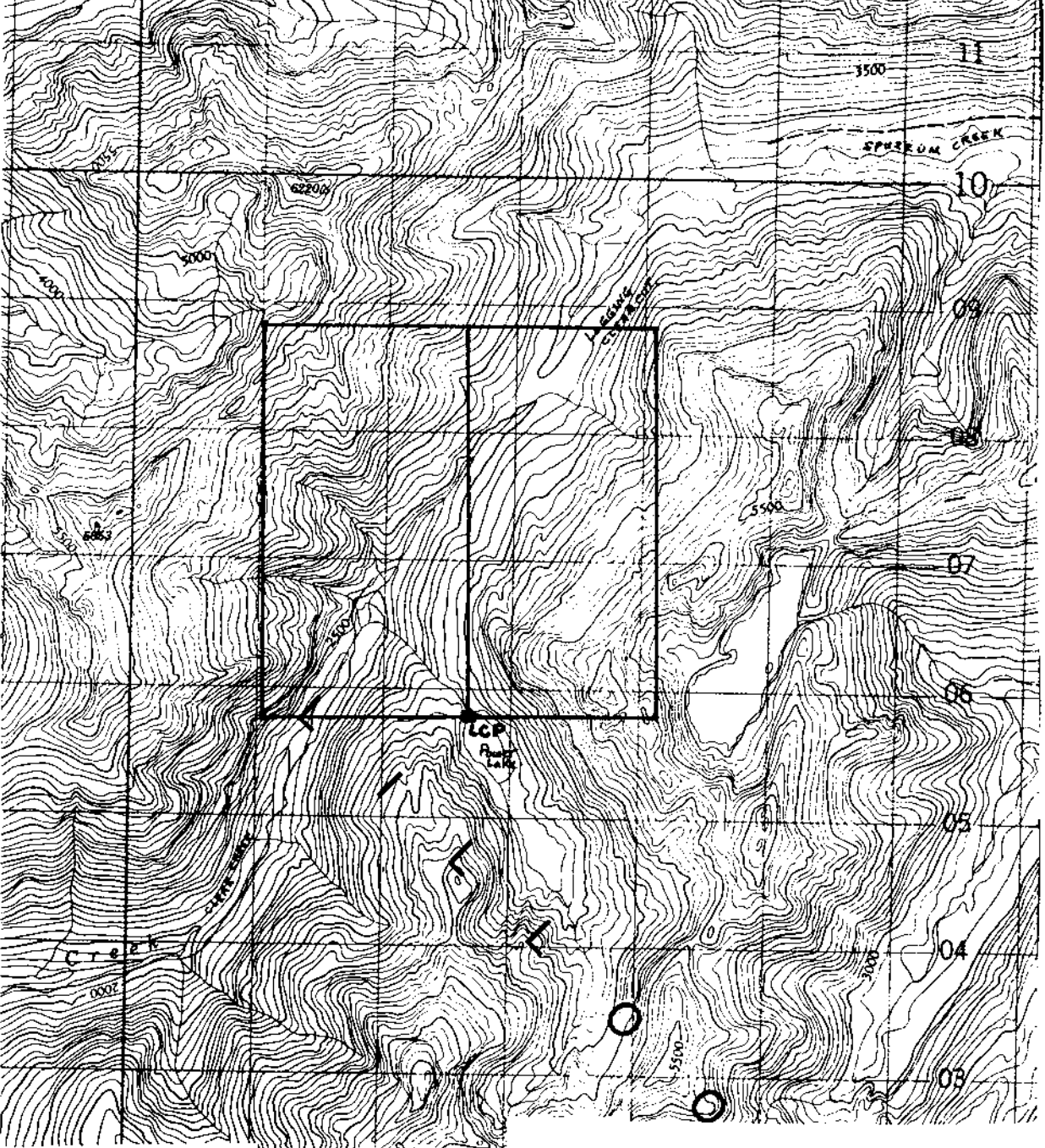
Scale 1: 7,500,000 approx.

FOUNDATION RESOURCES LTD.		
GEM GROUP		
<b>LOCATION MAP</b>		
Geologist	N.T.S. 92 H/12	Figure
 New Global Resources Ltd.	Date	Oct. 1999
	Scale	see above
		<b>1</b>





89 121° 45' 91 92 93 94 95 40' 96 49° 45'



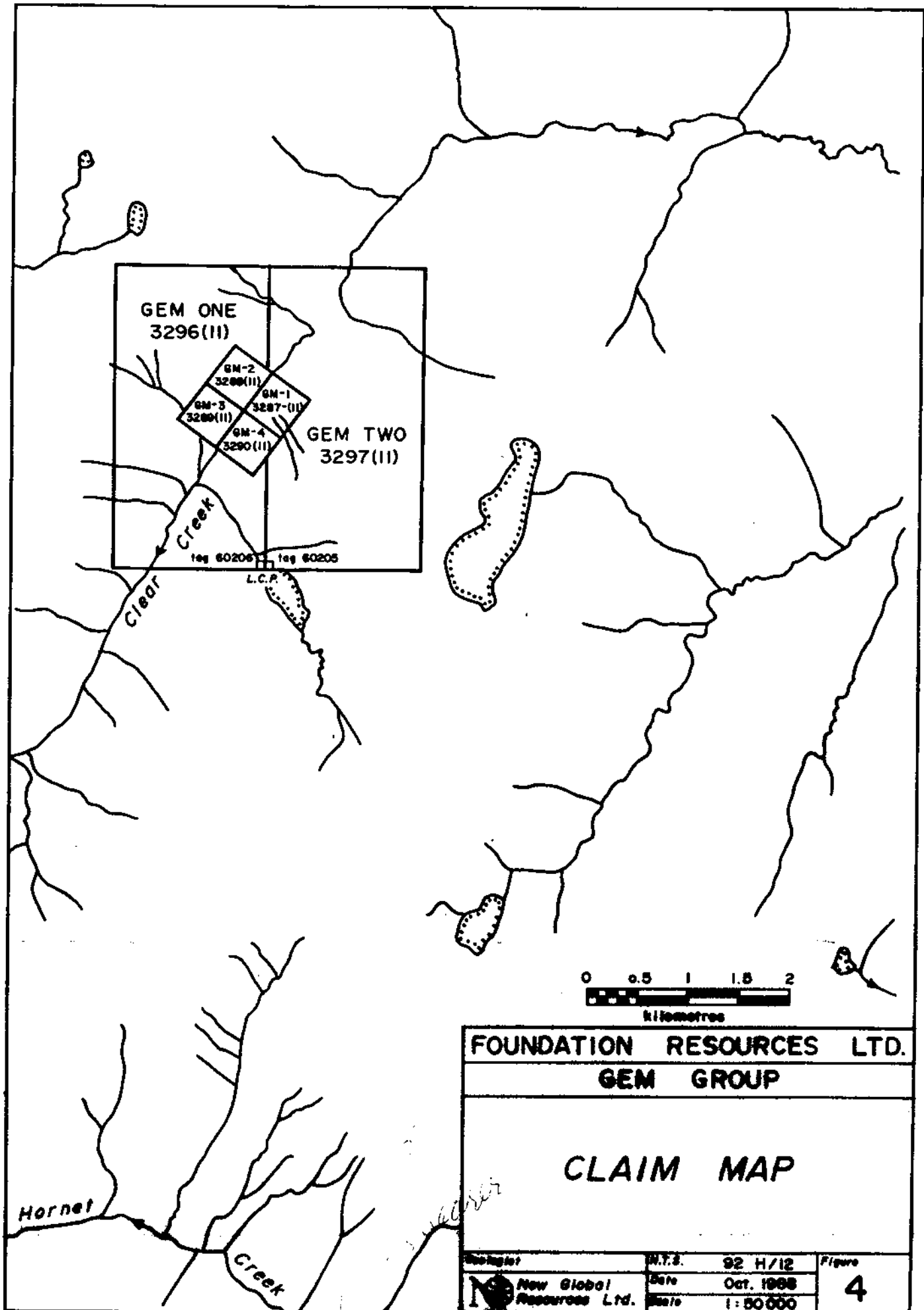
Use diagram only to obtain numerical values  
APPROXIMATE MEAN DECLINATION 1975  
FOR CENTRE OF MAP  
Annual change decreasing 2.7'



FOUNDATION RESOURCES LTD.  
GEM GROUP

TOPOGRAPHIC MAP

Geologist	N.T.S.	92 H/12	Figure
	Date	Oct. 1998	3
	Scale	1:50 000	



FOUNDATION RESOURCES LTD.			
GEM GROUP			
CLAIM MAP			
Scale?	N.T.S.	92 H/12	Figure
New Global Resources Ltd.	Date	Oct. 1988	4
	Scale	1:50000	

## FIELD PROCEDURES

Prospecting traverses were plotted on 1:50,000 scale topographic maps and later transferred to the 1:1200 enlargement. Both prospecting and geological traverses were aided by hip chain measurements. The available 1:1200 geology map constructed in 1964 as revised in 1975 proved to be a valuable starting point for continued detail mapping. Silt sampling methods are discussed in the geochemistry section.

## HISTORY

The original discovery of molybdenite in the Clear Creek - Spuzzum Creek was made prior to 1912 (Fawley, 1962, Young & Aird, 1969) and was prospected by J.A. Jamieson during 1912 and 1913. Some shipments of high grade ore were packed down Spuzzum Creek for Jamieson. In 1921 J.F. Bailey and his father did further prospecting in the area. The showings were held in the 1930's as the H.L.M. Group owned by Mrs. Minnie Peterson, of Louis Creek (Hendry, 1938). Considerable surface work and prospecting was done in 1938 by H.L. Batten and Associates before dropping their option in the early part of 1939.

Early exploration work was directed towards narrow molybdenum-bearing quartz veins. The original showing, the GEM vein, was optioned by J.F. Bailey in 1961 to Vancouver interests who in June, 1962 incorporated GEM Explorations Limited. During 1962 and 1963 GEM Explorations carried out some stripping and X-ray diamond drilling. An adit was collared on the GEM vein on the southeast side of Clear Creek late in 1963. This quartz vein, from 1 to 3 feet wide, strikes  $012^{\circ}$  Az and dips  $65^{\circ}$ W. The adit was driven to a length of 493 feet in 1964.

Utah Construction and Mining Co. optioned the property in July 1964 and exploration efforts were directed toward outlining a large low-grade "porphyry" - type of deposit. Geological mapping, induced polarization, resistivity and soil geochemistry were completed in 1964 (Rugg, 1968). From 1965 to 1968, Utah with joint venture partner Phelps Dodge completed 14,443 feet of diamond drilling in 21 holes.

Drilling to mid-1966 indicated a mineralized zone in excess of 30 million tons grading about 0.205% molybdenite (Minfile). Private, rough estimates of the mineral inventory by Utah personnel are approximately 17,500,000 tons averaging 0.125% MoS<sub>2</sub> with a 0.10% MoS<sub>2</sub> cut-off. This mineralized material was not profitable to mine.

After the claims lapsed in 1975, the ground was acquired by AMAX Potash Limited. Limited geological mapping and petrology were completed in 1975 (Allen, 1975). Diamond drilling of one hole totalling 2,007 feet in length was done by AMAX and joint venture partner E&B Explorations in 1981, (Enns, 1981).

The AMAX claims were forfeited in 1987 and the area was staked by D. Javorsky as the GM 1-4 claims which were optioned to Foundation Resources Ltd.

## REGIONAL GEOLOGY

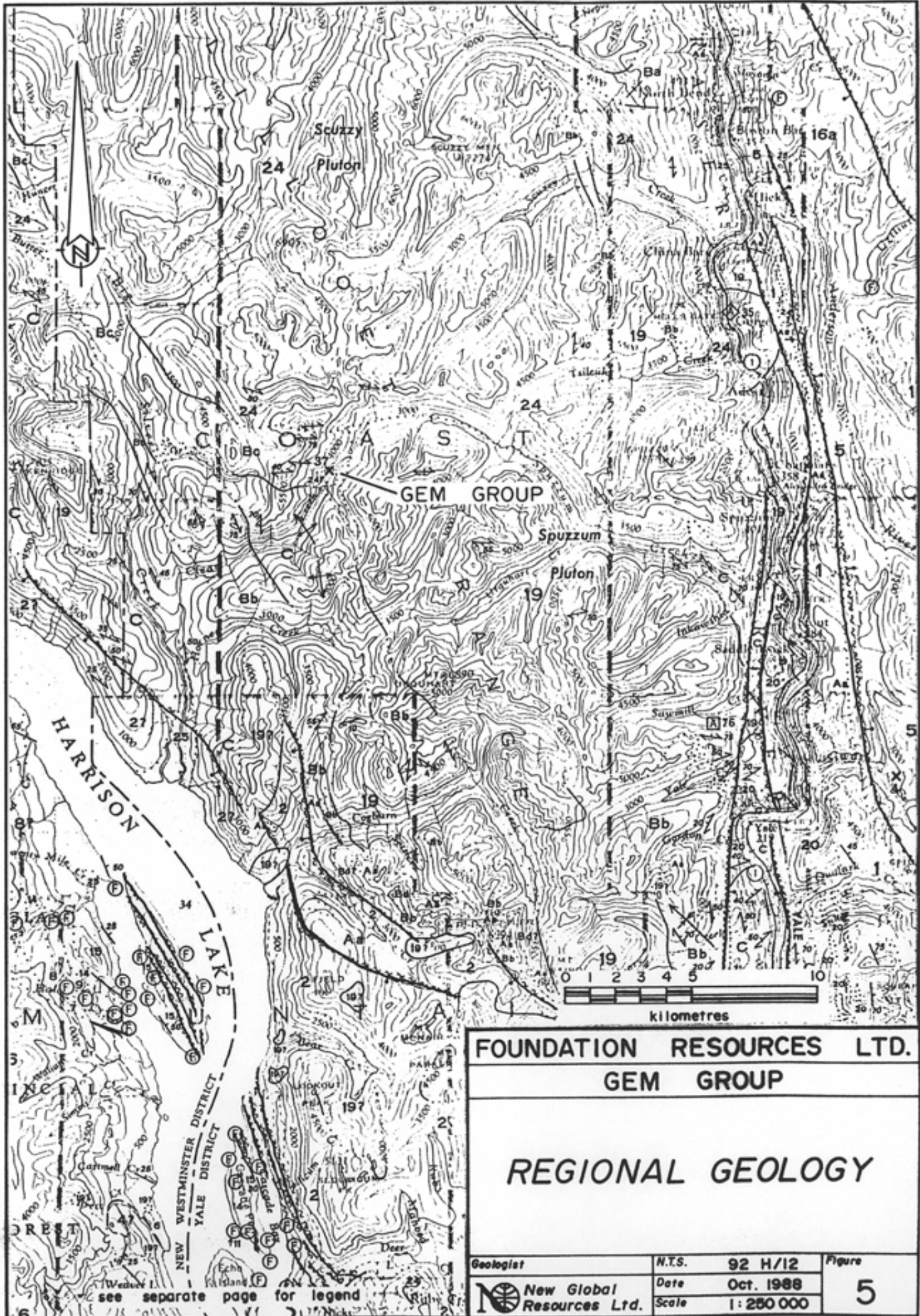
Regional geological features have been compiled by Monger (1970), Figure 5. Generally, the Gem Molybdenum Deposit occurs at the contact of the Miocene Scuzzy Pluton (Map Unit 24, granodiorite, granite), Upper Cretaceous Spuzzum Pluton (Map Unit 19, quartz diorite) and Map Unit Bc (migmatitic equivalent of schist and amphibolite). Molybdenite mineralization is hosted by a biotite quartz monzonite porphyry stock (referred to as the Gem Stock) and large breccia bodies.

Monger (1969) describes the metamorphic rocks in the Gem area as follows; page 32:

### "Rocks west and northwest of Mount Urquhart (units Bb and Bc)

About 8 miles northwest of Mount Urquhart is fine-grained, dark grey, biotite-quartz schist that locally contains garnet, sillimanite and staurolite, and is interlayered with light coloured quartz-feldspar schist. Near the eastern contact with gneissic rocks amphibolite and granitoid layers are common (Roddick and Hutchinson, 1969).





Unit Bc is the migmatitic equivalent of unit Bb. Fine-grained biotite-quartz schist, commonly with garnet and locally with sillimanite, contains numerous concordant layers of granitoid gneiss 2 to 6 inches



FOUNDATION RESOURCES LTD.			
GEM GROUP			
REGIONAL GEOLOGY			
Geologist	N.T.S.	92 H/12	Figure
New Global Resources Ltd.	Date	Oct. 1988	5
	Scale	1:250 000	

see separate page for legend

LEGEND  
FOR FIGURE 5  
(from Monger, 1970)

- 
- 25 **Quaternary**  
Pleistocene and Recent  
Glacial, glaciofluvial and fluvial gravel, sand and clay, talus and slope wash deposits
- Tertiary**  
Miocene and earlier
- 24 Granodiorite, quartz diorite
- Mesozoic**  
Upper Cretaceous or (?) older
- 19 Quartz diorite
- Lower Cretaceous**
- 16a Jackass Mountain Group:  
Sandstone, pelite and conglomerate
- 15 Brokenback Hill Formation: tuff, agglomerate, sandstone, pelite
- 14 Peninsula Formation: sandstone, conglomerate
- Middle Jurassic**
- 8 Mysterious Creek Formation: pelite
- 7 Echo Island Formation: tuff, minor agglomerate, sandstone, pelite
- 6 Harrison Lake Formation: intermediate to acidic flow and pyroclastic rock
- Paleozoic**  
Pennsylvanian and Permian
- 2 Chilliwack Group  
Basic volcanic rocks and pelites, intermediate to acidic tuff and agglomerate
- Devonian**
- 1 Hozameen Group  
Pelite, chert, basic volcanic rock, minor limestone
- Aa Ultramafic Rock  
Serpentinite, serpentinitized peridotite
- Bc Migmatitic equivalent of Bb
- Bb Schist, amphibolite
- C Gneiss
-  Fault
-  Schistosity
-  Plunging anti form
-  Bedding

thick. The gneiss is of biotite granodiorite composition and commonly grades into pegmatite. It forms 30 to 70 percent of the rock.

Northwest of Mount Urquhart these schists form the flanks of a broad, northwest-trending, doubly plunging anticline or elongate dome, with gneiss (unit C) exposed in the core. Where seen, the contacts with gneiss are sharp and concordant. To the east the schists are in contact with quartz diorite of Late Cretaceous age (unit 19) and mid-Tertiary(?) granodiorite (unit 24). The contact with the quartz diorite is marked by a zone of lit-parlit migmatite about 100 yards wide. By contrast, that with the granodiorite is fairly sharp, with a transition zone only 5 to 25 feet wide containing abundant pegmatitic and aplitic material. To the southeast these rocks are separated by a narrow tongue of quartz diorite lithologically similar to rocks northwest of Hope. Southwards they seemingly grade into the complex of amphibolite, metachert, minor limestone pods and ultramafic rocks that form The Old Settler."

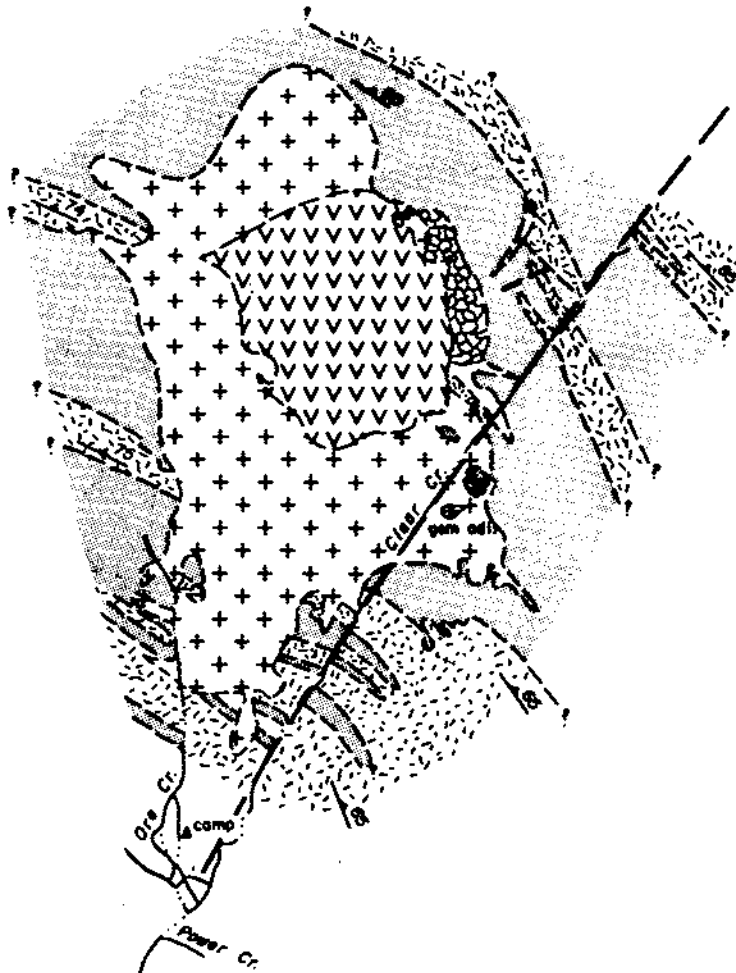
Rugg (1968, page 3) comments that the broad anticlinal fold mapped in Unit C gneisses "may have influenced emplacement of the intrusive (Gem Stock) or conversely the structure may have been a result of the intrusive activity."

Recent work by Ray & Coombes (1985) suggests that gold mineralization at the nearby RN mine and Doctors Point may form part of a synchronous, regional, magmatic-related Tertiary event at about 24 Ma along the Harrison Lake fracture system.







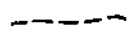

## LOCAL GEOLOGY AND MINERALIZATION

The local geology of the Gem Molybdenum Deposit is relatively well known. Descriptions can be found in several publications and private reports (Rugg, 1968), Young and Aird (1969), Allen (1975) and Enns (1981) and the following discussion is largely taken from these sources with minor modifications as results of 1987 observations.


Local geological features are summarized on Figure 6 and presented in more detail on Figure 7 (in pocket). The claims cover a Miocene-age quartz monzonite stock (Gem stock), which intrudes foliated quartz diorite, coarse biotite schists and gneiss of the Coast Plutonic Complex. This stock is 1,200 by 550 metres in extent and is composed mainly of inequigranular to porphyritic quartz monzonite. Enns



**LEGEND**

-  Q.M.P. Breccia
-  Granite
-  Mixed Breccia
-  Granodiorite
-  Schist and Gneiss
-  Fault (inferred)
-  Contact
-  Gneissosity - strike & dip



<b>FOUNDATION RESOURCES LTD.</b>		
<b>GEM GROUP</b>		
<b>GENERAL GEOLOGY</b>		
<i>Geologist</i>	N.T.S. 92 H/12	<i>Figure</i>
 <b>New Global Resources Ltd.</b>	<i>Date</i> Oct. 1988	<b>6</b>
	<i>Scale</i> 1:12970	

from CIM Bulletin, January 1969



(1981) identified a younger porphyritic biotite granodiorite phase which was dated at 34 Ma occurring at depth within the stock.

A rough circular (in plan) breccia pipe, the Gem Breccia, approximately 400 metres in diameter, has intruded the northeastern contact of the quartz monzonite stock. Subangular to subrounded clasts commonly three to ten centimetres across comprise up to 50% of the rock. Quartz latite fragments (of unknown source) predominate but quartz monzonite, schist and aplite fragments are also present, being more common near the pipe's margin. The matrix consists of finely comminuted rock with conspicuous quartz phenocrysts and abundant fine brown biotite and locally chlorite. Intra-breccia dykes of quartz latite are present locally with parallel attendant flow-structures at 150° Az. A mega-breccia, termed "Mixed Breccia", restricted mainly to the stock's contact with country rock as well as with Gem Breccia is composed of large clasts of abundant coarse schist and foliated quartz diorite. This breccia is compact so that relatively little matrix exists between the subangular clasts.

Narrow one to three metre rhyolite porphyry dykes intrude all of the above units and are most plentiful near the east contact of the stock. They are pale white to cream coloured, weather to pale pink slabby talus blocks and contain prominent bi-pyramidal quartz phenocrysts.

Gray coarse grained feldspar-quartz porphyry intrusive dykes occur locally within the Gem Breccia. Late black andesite and lamprophyre dykes represent the youngest igneous stage. A north-northeast trending fault traces the course of Clear Creek.

Enns (1981) summarizes the known molybdenum occurrences as follows:

"Mineralization consists predominantly of molybdenite in all units except the coarse grained feldspar quartz porphyry and late andesite dykes are mineralized. Best mineralization as outlined by Utah's work appears to favour the quartz monzonite/schist-gneiss contact. It occurs as 1,600 by 200 foot crescent shaped zone straddling the eastern edge of the Gem Breccia. Molybdenite occurs in the following modes listed in order of decreasing abundance: 1) as medium grained (2 mm to 5

mm) crystals discontinuously sprinkled along the edges of and within one to two centimetres coarse quartz (+ calcite) veins; 2) as coarse .5 to 1.5 centimetres isolated spectacular rosettes and blebs in wide two centimetres to .5 metres wide quartz veins; 3) as fine grained quartz-molybdenite blueish veins one to two millimetres wide, and; 4) as occasional "paint" along fractures. The first three modes combined in wide quartz veins (several feet) comprise the spectacular mineralization which attracted the early prospectors. Occasional minor pyrite and pyrrhotite accompany molybdenite-quartz veining which constitutes a random, coarse stockwork. Two stages of molybdenite veining have been noted cut by a later barren quartz veining stage. Most veins display no wallrock effect; only occasional veins show distinct wallrock bleaching of feldspars. Only those quartz-molybdenite veins found in rhyolite porphyry dykes and extending into the Gem Breccia were observed to contain substantial sericite accompanying molybdenite."

## GEOCHEMISTRY AND PROSPECTING

Most of the previous exploration was carried out with the aim of developing an economic deposit of molybdenite ore, and little or no attention was paid to possible gold values. There are, however, several mentions of gold in the previous reports which may be of significance.

Hendry (1938) reports that five vein samples were assayed for both  $\text{MoS}_2$  and Au. These results are tabulated below:

	<u>oz/ton Au</u>	<u>% <math>\text{MoS}_2</math></u>
#1	0.02	0.20
#2	0.02	Tr
#3	Tr	0.20
#4	0.01	1.70
#5	0.01	0.90

The low grade samples reported by Hendry (1938) show no correlation between gold and molybdenum. This could lead to a conclusion that the gold source could be not only the molybdenite, but also from the copper-iron sulphides which have been noted, or from the quartz vein material itself.

In 1963, Gem Explorations Ltd. submitted a selected high grade sample (likely hand-cobbed) of molybdenite mineralization to Britton Research Laboratories for flotation tests. This sample assayed 30.65% MoS<sub>2</sub> and 0.29 oz/ton Au. The flotation concentrate from this sample assayed 93.82 MoS<sub>2</sub> and 0.88 oz/ton Au, with recoveries of 91.8% of the Mo and 90.4% of the Au. The results of the flotation test on the high grade sample suggests that the gold is primarily associated with the molybdenite, but this was only one sample and would require further tests for verification.

An examination of the Utah drill logs show no assays for gold, but in E.S. Rugg's report on the program dated February 1968, there are mentions of occurrences of pyrrhotite, pyrite, and chalcopyrite associated with some of the veins and also disseminations of these sulphides and massive lenses of pyrrhotite in the schists. Apparently these were never sampled for gold values.

There are mentions of free gold in some old Minister of Mines' reports, and a verbal report by R. Steiner, geologist, of gold in certain granite near the Gem adit.

One source which has never been tested is the occurrences of pyrite, pyrrhotite, and chalcopyrite in the schists, as reported by Rugg (1968) south of Power Lake. These sulphides are known to be favourable as a host for gold values, but have been ignored up to now, as they appeared barren of molybdenite which was the exploration target.

Most of the work done in 1987 consisted of prospecting along the Upper Clear Creek Valley (refer to Figure 7 for location of prospecting traverses and rock samples). Minor pyrite mineralization was observed. Several rock samples and drill core specimens were sent for gold assays as indicated on Figure 7 and contained in Appendix IV. Alteration on the property associated with hydrothermal activity is generally lacking. Biotite in quartz monzonite is predominantly fresh. Local strong sausseritization and chloritization of quartz monzonite several tens of feet away from the Gem Breccia contact was noted in Breccia Creek. The overall Fe-sulphide content of the molybdenite system is conspicuously low. Three of the rock samples assayed returned slightly anomalous gold values (greater than 100 ppb Au), but there is no correlation between Mo and Au values.

Preliminary silt sampling, refer to Figure 7, in pocket, was completed along the main Clear Creek and tributary Power Creek. Silt samples were collected from the active portions of the drainage. Gold values ranged from 5 to 450 ppb Au with 5 of the 18 samples being in excess of 100 ppb (samples on claims) and are considered anomalous. More detailed silt sampling is required on all the minor tributaries of Clear Creek to more closely define the areas of gold concentrations.

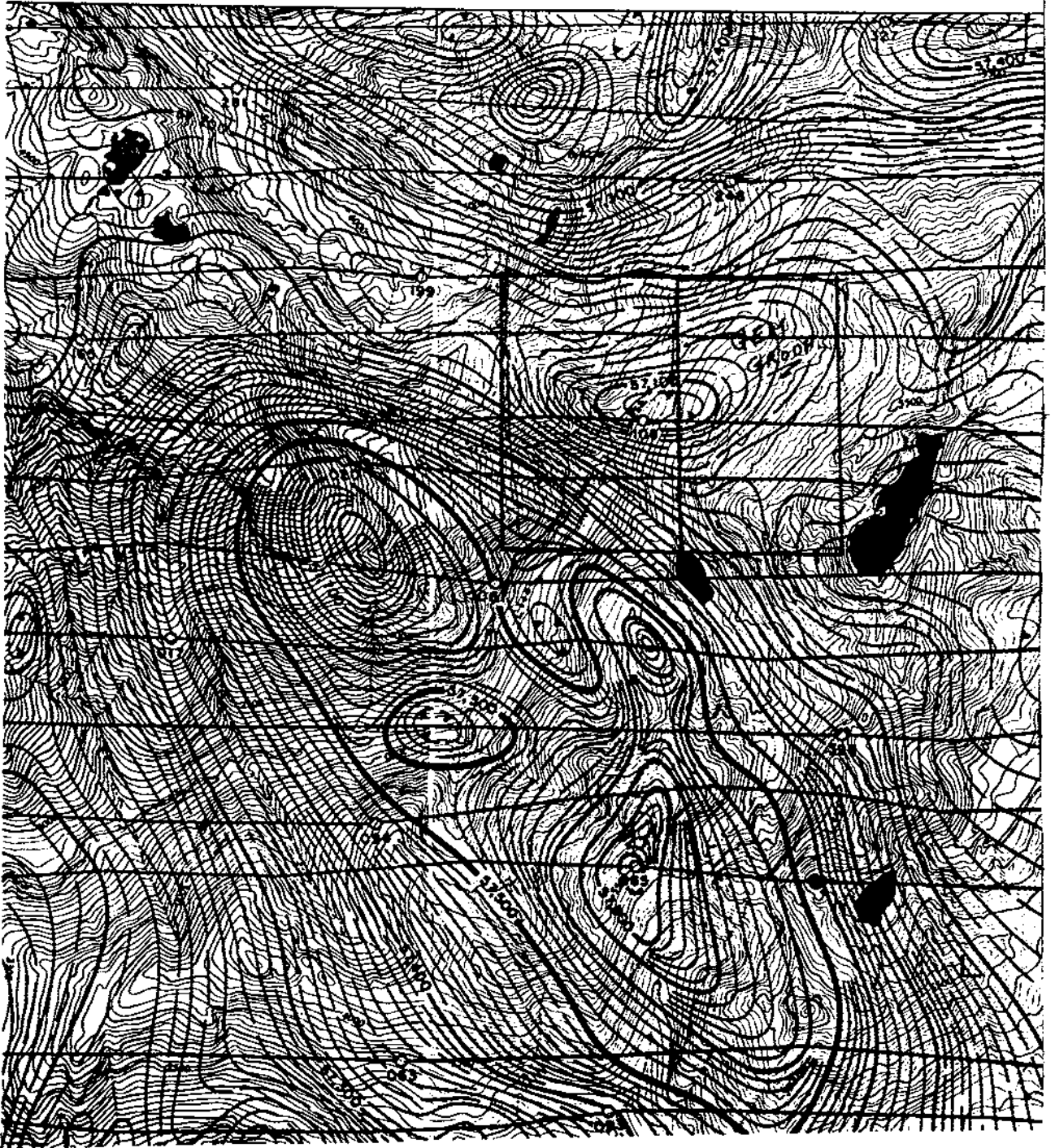
### **GEOPHYSICS**

A portion of the Aeromagnetic Map 8539 G - Mount Urquhart is shown as Figure 8. The Gem quartz monzonite stock appears as a distinct magnetic low at 57,090 gammas. The gneiss of Map Unit C immediately southwest of the stock is characterized by a complex series of magnetic highs up to 57,900 gammas. This may reflect in part the large pyrrhotite lenses reported by Rugg (1968). To the north of the Gem deposit, the contact phase of the Scuzzy Pluton is reflected by a moderately undulating magnetic signature with isolated highs of 57,450 gammas.


Ground geophysical surveys, induced polarization and resistivity, were conducted by Utah in 1964 (Young and Aird 1969). A Wenner array was used with a 150 foot "a" spacing. No significant anomalies were discovered. Rock specimens containing disseminated MoS<sub>2</sub> were tested in a test cell but did not produce anomalous chargeabilities.

### **CONCLUSIONS AND RECOMMENDATIONS**

The Gem Group covers the well known Gem Molybdenum Deposit. Considerable preliminary exploration work has been completed in the past including 14,443 feet of diamond drilling by Utah Construction and Mining Ltd. prior to 1968. The largest drill intersection was hole GC-6 which averaged 0.135% MoS<sub>2</sub> over 515 feet.



5700  
 ISOMAGNETIC LINE  
 IN GANNAS

FOUNDATION RESOURCES LTD.		
GEM GROUP		
<b>AEROMAGNETIC MAP</b>		
Geologist	N.T.S.	92 H/12
 New Global Resources Ltd.	Date	Oct. 1988
	Scale	
		Figure <b>8</b>

Rough estimates by Utah personnel of the mineral inventory of the volume exceeding 0.10% MoS<sub>2</sub> based on the preliminary surface diamond drilling is approximately 17,500,000 tons averaging 0.125% MoS<sub>2</sub>. This mineralized material would not be profitable for mining or extraction at current molybdenum prices.

Foundation Resources conducted an initial prospecting program to search for related gold mineralization commonly found peripheral to major porphyry-style mineralized centers. Minister of Mines reports refer to free gold being found in both Clear and Spuzzum Creeks. Silt sampling returned values up to 205 ppb gold for samples from Power Creek in the central part of the claim group.

To determine the possibilities of economic gold values on your property, the following modest program is recommended:

1. The Utah diamond drill cores should be re-examined, particular attention being paid to sections showing concentrations of pyrite or pyrrhotite. These should be assayed for gold.
2. The showings of disseminated and massive sulphides reported by Rugg should be located and sampled.
3. Silt samples should be taken from the tributary creeks of Clear Creek, especially those which appear to be well removed from the known area of molybdenum mineralization.
4. Another high grade sample should be taken from the main Gem Exploration workings to attempt to repeat the results achieved by Britton Research. If similar gold values are encountered, then petrographic studies should be done on similar material to determine the association of the gold with the other minerals.

Estimated costs of this program is as follows (after Elwell 1988):

Phase 1

1.	Relogging of the Utah Mining Co. drill core including the splitting and sampling of sections which are devoid of molybdenum, but contain pyrite and pyrrhotite. One geologist for 2 weeks at \$250 per day	\$ 3,750
2.	Detailed prospecting and reconnaissance mapping and sampling of claim area with particular attention to occurrences of pyrite, pyrrhotite and chalcopyrite as noted in earlier reports. One experienced prospector for 4 weeks at \$300 per day	7,500
3.	Silt sampling of tributary streams to Clear Creek. Allow 300 samples at \$12.50 each	3,750
4.	Resampling of high grade showing in Gem Exploration workings, including assays and petrographic studies	500
5.	Assaying - allow 200 samples at \$10.00 each	2,000
6.	Vehicle rental and camp	2,000
7.	Crew maintenance at \$100/day for 30 days	<u>3,000</u>
	<b>Total Phase 1</b>	<b>\$ 22,500</b>

Phase 2 (contingent on favourable results from Phase 1)

1.	Detailed mapping and sampling of areas of interest resulting from the prospecting and silt sampling programs One geologist for 15 days at \$250 per day	\$ 3,750
2.	Crew maintenance, 15 days at \$100 per day	1,500
3.	Engineering and administration, including additional assaying	<u>3,000</u>
	<b>Total Phase 2</b>	<b>\$ 8,250</b>
	<b>Sub-total, Phase 1 and 2</b>	<b>30,750</b>
	<b>Contingency allowance for both phases at approx. 14%</b>	<b><u>4,250</u></b>
	<b>TOTAL PHASES 1 AND 2</b>	<b><u>\$ 35,000</u></b>

Phase 3

Subject to the results of Phase 1 and 2 working showing sufficient evidence of gold mineralization to justify further work, Phase 3 exploration would be initiated. This would probably consist of trenching and diamond drilling.

A provisional budget of \$100,000 has been allowed, distributed as follows:

1. 500 m diamond drilling at \$150/m, all inclusive	\$ 75,000
2. Trenching, assaying, etc.	<u>25,000</u>
<b>Total Phase 3</b>	<b><u>\$ 100,000</u></b>
 <b>TOTAL PHASES 1, 2 AND 3</b>	 <b><u><u>\$ 135,000</u></u></b>

Further expenditures will be contingent on the results achieved.

Respectfully submitted,



J.T. Shearer, M.Sc., FGAC  
January 15, 1989



## REFERENCES

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APPENDIX I

STATEMENT OF COSTS

1987 - 1988

GEM GROUP

FOUNDATION RESOURCES LTD.

548 Beatty Street

Vancouver, B.C.

V6B 2L3

Phone: (604) 681-4279

Fieldwork completed between November 18, 1987 and October 26, 1988

STATEMENT OF COSTS

GEM GROUP

Fieldwork completed between November 18, 1987 and October 26, 1988

**Wages and Benefits**

J.T. Shearer	Geologist	2 days @ \$300	\$ 600.00
T. Sawyer	Geologist	1 day @ \$300	300.00
D. Heino	Prospector	4 days @ \$165	660.00
D. Javorsky	Prospector	3 days @ \$100	<u>300.00</u>
			\$ 1,860.00

**Transportation**

Pemberton Helicopters (Pemberton), part of invoice	\$ 450.00
Highland Helicopters, 1/4 of invoice 46881	373.91
Highland Helicopter, (Aggassiz)	432.00
Truck Rental, 4 days @ \$50 per day	200.00
Gas	55.00
Food and Camp Costs	45.00
Field Supplies	24.50

**Analytical (Chemex Labs Ltd.)**

25 rock samples @ 10.75 for Au	268.75
5 silt samples @ 7.25 for Au	36.25
Petrographics, Vancouver Petrographics Ltd.	103.25
Consulting Geology, J. Elwell, P.Eng.	450.00
Report Preparation	500.00

Word Processing and Reproduction	325.00
Drafting (G. Lillos Ltd.) 20 hours @ \$20 per hour	400.00

GRAND TOTAL \$ 5,523.66

APPENDIX II

STATEMENT OF QUALIFICATIONS

J.T. SHEARER, M.Sc., F.G.A.C.

NEW GLOBAL RESOURCES LTD.

548 Beatty Street

Vancouver, B.C.

V6B 2L3

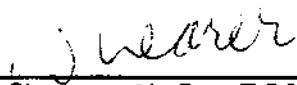
Phone: 681-4902

Fieldwork completed between November 18, 1987 and October 26, 1988

## STATEMENT OF QUALIFICATIONS

I, Johan T. Shearer of the City of Port Coquitlam, in the Province of British Columbia, do hereby certify:

1. I graduated in Honours Geology (B. Sc. 1973) from the University of British Columbia and the University of London, Imperial College, (M. Sc. 1977).
2. I have practised my profession as an Exploration Geologist continuously since graduation and have been employed by such mining companies as McIntyre Mines Ltd., J.C. Stephen Explorations Ltd. and Carolin Mines Ltd. I am presently employed by New Global Resources Ltd.
3. I am a fellow of the Geological Association of Canada. I am also a member of the Canadian Institute of Mining and Metallurgy, the Geological Society of London and the Mineralogical Association of Canada.
4. I have personally conducted and supervised geological mapping and prospecting on the GEM Group between November 18, 1987 and October 26, 1988. This report is an interpretation of the data obtained.
5. I hold directly 233,333 escrow shares and 80,000 free-trading shares of Foundation Resources Ltd., plus other Foundation shares indirectly.

  
\_\_\_\_\_  
J.T. Shearer, M. Sc., FGAC

Vancouver, B.C.  
January 15, 1989

APPENDIX III

LIST OF PERSONNEL AND DATES WORKED

GEM GROUP

1987 - 1988

Fieldwork completed between November 18, 1987 and October 26, 1988

APPENDIX IV

LIST OF PERSONNEL AND DATES WORKED

<u>Name</u>	<u>Position</u>	<u>Address</u>	<u>Days Worked</u>
J.T. Shearer	Geologist	3832 St. Thomas Street Port Coquitlam, B.C. V3B 2Z1	November 18, 1987 October 26, 1988 2 days
T. Sawyer	Geologist	648 Pender Street Vancouver, B.C.	October 26, 1988 1 day
D. Heino	Prospector	Box 86 Hope, B.C. V0X 1L0	November 22, 23, 24, 25, 1987 4 days
D. Javorsky	Prospector	P.O. Box 806 Stewart, B.C.	November 30, 1987 June 15, 16, 1988 3 days

T. Sawyer - State of California, Register Geologist Licence No. 00467, U. of California, Berkley, B.A., 1949 in Geology.

D. Heino - Very experienced, self-employed prospector with in excess of 20 years of solid prospecting experience.

D. Javorsky - Very experienced, self-employed prospector with in excess of 20 years of solid prospecting experience, owner of GM 1-4 Claims.

APPENDIX IV

ANALYTICAL PROCEDURES  
AND  
ASSAY CERTIFICATES

GEM GROUP

Chemex Labs Ltd.  
212 Brooksbank Avenue  
North Vancouver, B.C.  
V7J 2C1  
Phone: (604) 684-0221

Fieldwork completed between November 18, 1987 and October 26, 1988





# Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers  
212 BROOKSBANK AVE., NORTH VANCOUVER,  
BRITISH COLUMBIA, CANADA V7J-2C1  
PHONE (604) 984-0221

To: NEW GLOBAL RESOURCES

548 BEATTY ST.  
VANCOUVER, BC  
V6B 2L3

A8826773

Comments: ATTN: B LENNAN

## CERTIFICATE A8826773

NEW GLOBAL RESOURCES

PROJECT : GEM  
P.O.# : NONE

Samples submitted to our lab in Vancouver, BC.  
This report was printed on 9-NOV-88.

## ANALYTICAL PROCEDURES

CHEMEX NUMBER CODE SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
101 7	Au ppb: Fuse 10 g sample	FA-NAA	1	10000

## SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	7	Rock Geochem: Crush, split, ring

### \* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.



# Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers  
212 BROOKSBANK AVE., NORTH VANCOUVER,  
BRITISH COLUMBIA, CANADA V7J-1C1  
PHONE (604) 984-0221

TO NEW GLOBAL

726 - 815 W. HASTINGS ST.  
VANCOUVER, BC  
V6C 2Y4

A8727534

Comments:

CERTIFICATE A8727534

NEW GLOBAL  
PROJECT : GEM  
P.O.# : NONE

Samples submitted to our lab in Vancouver, BC.  
This report was printed on 14-DEC-87.

## SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	14	Rock & core: Ring

• NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

## ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
3	14	Mo ppm: HNO <sub>3</sub> -aqua regia digest	AAS	1	10000
13	14	As ppm: HNO <sub>3</sub> -aqua regia digest	AAS-HYDRIDE/EDL	1	10000
100	14	Au ppb: Fuse 10 g sample	FA-AAS	5	10000



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers  
111 BROOKSBANK AVE. NORTH VANCOUVER,  
BRITISH COLUMBIA, CANADA V7J-2C1  
PHONE (604) 954-0211

To: NEW GLOBAL

726 - 815 W. HASTINGS ST.  
VANCOUVER, BC  
V6C 2Y4

A8727309

Comments:

**CERTIFICATE A8727309**

## ANALYTICAL PROCEDURES

NEW GLOBAL  
PROJECT : NORTHERN GEM  
P.O.# :

Samples submitted to our lab in Vancouver, BC.  
This report was printed on 8-DEC-87.

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	9	Au ppb: Fuse 10 g sample	FA-AAS	5	10000

## SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	9	Rock & core: Ring



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers

111 BROOKSBANK AVE., NORTH VANCOUVER,  
BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

T. LEW GLOBAL

726 - 815 W. HASTINGS ST.  
VANCOUVER, BC  
V6C 2Y4

Project : NORTHERN GEM

Comments :

\*\*Page No.  
Tot. Pages :  
Date : 8-DEC-87  
Invoice # : I-8727309  
P.O. # :

## CERTIFICATE OF ANALYSIS A8727309

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA									
A-01	205	--	<	5							
A-02	205	---	<<	5							
A-03	205	---	<<	5							
A-05	205	---	<	65							
A-06	205	---	<	5							
A-07	205	--		20							
A-08	205	---		70							
A-09	205	---	<<	5							
A-10	205	---	<<	5							

CERTIFICATION : Hart Buchler



# Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

112 BROOKSBANK AVE., NORTH VANCOUVER,  
BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

3W GLOBAL

726 - 815 W. HASTINGS ST.  
VANCOUVER, BC  
V6C 2Y4

Project: GEM

Comments:

\*\*Page

Tot. Page: 1

Date: 14-DEC-87

Invoice #: I-8727534

P.O. #: NONE

## CERTIFICATE OF ANALYSIS A8727534

SAMPLE DESCRIPTION	PREP CODE	Mo ppm	As ppm	Au ppb FA+AA							
2714	205 ---	2	15	25							
2715	205 ---	1	12	60							
2716	205 ---	70	6	5							
2717	205 ---	>1000	3	< 5							
2718	205 ---	2	120	100							
2719	205 ---	4	77	5							
2720	205 ---	9	6	< 5							
2721	205 ---	>1000	4	410							
2722	205 ---	210	4	10							
2723	205 ---	1000	22	30							
2724	205 ---	600	9	95							
2725	205 ---	8	3	65							
2726	205 ---	>1000	16	15							
2727	205 ---	280	10	120							

CERTIFICATION :

*Hart Bichler*



# Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers  
212 BROOKSBANK AVE., NORTH VANCOUVER,  
BRITISH COLUMBIA, CANADA V7J-2C1  
PHONE (604) 984-0221

To: NEW GLOBAL RESOURCES

548 BEATTY ST.  
VANCOUVER, BC  
V6B 2L3

Project: GEM  
Comments: ATTN: B. LENNAN

*Samples  
Wash*

Page No. : 1  
Tot. Pages: 1  
Date : 9-NOV-88  
Invoice # : I-8826773  
P.O. # : NONE

## CERTIFICATE OF ANALYSIS A8826773

SAMPLE DESCRIPTION	PREP CODE	Au NAA ppb								
360641	205	---	37							
360642	205	---	14							
360643	205	---	14							
360644	205	---	44							
360645	205	---	4							
360646	205	---	1							
360647	205	---	4							

CERTIFICATION : *Mark Voth*

**ANALYSIS OF GEOLOGICAL SAMPLES**

To: Mr. D. Javorsky  
 1614 - 675 West Hastings Street  
 Vancouver, B.C.  
 V6B 4W3

workorder: 8119  
 Received: 13-Nov-8  
 Completed: 26-Nov-8

NOV. 26, 1987

Re: Chemical Analysis of Rock Samples from GEM Property

Sample type	MoS2 Chios	Rock
Identification	GEM-1	GEM 2
Lab Reference #	8119-001	8119-002
Analyzed by Plasma Emission Spectroscopy (ICAP)		
Method used	HNO3/HClO4	HNO3/HClO4
	soluble	soluble
Trace Elements		
Arsenic	As : < 200	< 30
Boron	B : 260	< 1.0
Beryllium	Be : 1.0	< 0.1
Bismuth	Bi : 5740	230
Cadmium	Cd : < 2.	< 0.3
Cobalt	Co : < 5.	2.
Chromium	Cr : 678.	98.
Copper	Cu : 69.	18.
Iron	Fe : 8240	8200
Mercury	Hg : < 50	< 10.
Manganese	Mn : 3400	358
Molybdenum	Mo : 418000	2920.
Nickel	Ni : 9.	8.
Lead	Pb : 400	14.
Antimony	Sb : 100	< 10.
Selenium	Se : < 50	< 10.
Thorium	Th : < 30	< 5.
Uranium	U : < 200	< 30
Vanadium	V : < 3.	17.5
Zinc	Zn : 50	21.
Results in	ppm	ppm
Precious Metals by Fire Assay		
Silver	Ag : 1.05	0.04
Gold	Au : 0.229	0.005
Palladium	Pd : < 0.001	0.0004
Platinum	Pt : < 0.001	0.0004
Rhodium	Rh : < 0.002	< 0.001
Results in	oz/T	oz/T

Assaver: *[Signature]*

**cuanta trace laboratories inc.**

401-3700 Gilmore way, Burnaby, B.C., Canada V5G 4M1

Tel: (604) 438-5226

To: Mr. D. Javensky

X/O: 8151 Page 3

*December 1987*

Sample type	Rock	Rock	Sand
Identification	GEM 1	GEM Rock 2	GEM Acid 3
Lab Reference #	8151-006	8151-007	8151-008

Analyzed by Plasma Emission Spectroscopy (ICAP)

Method used	Total	Total	Total
<b>Trace Elements</b>			
Silver Ag	2.0	0.8	6.5
Arsenic As	< 30	< 30	250
Boron B	< 1.	< 1.	< 1.
Beryllium Be	3.4	2.3	2.3
Bismuth Bi	370	20	70
Cadmium Cd	< 0.3	< 0.3	10.4
Cobalt Co	4	4	14
Chromium Cr	134.	27.	488.
Copper Cu	32	70	180
Mercury Hg	< 10	< 10	10
Molybdenum Mo	15300	6340	10400
Nickel Ni	10	10	530
Lead Pb	43	27	220
Antimony Sb	< 10	< 10	< 10
Selenium Se	< 10	< 10	< 10
Thorium Th	11	15	5
Uranium U	< 30	< 30	< 30
Vanadium V	5.	1.	5.
Zinc Zn	10	20	840

Results in	ppm	ppm	ppm
<b>Precious Metals by Fire Assay</b>			
Gold Au	0.250	0.001	0.082
Palladium Pd	< 0.0004	< 0.0004	< 0.0004
Platinum Pt	0.0010	0.0007	0.0008
Rhodium Rh	< 0.001	< 0.001	< 0.001

Results in	oz/T	oz/T	oz/T
<b>Majors as Oxides</b>			
Silicon % SiO2	75.5	73.1	61.9
Aluminum % Al2O3	12.2	15.0	15.6
Iron % Fe2O3	1.21	1.50	8.44
Calcium % CaO	0.72	0.18	0.98
Magnesium % MgO	0.09	0.20	0.21
Sodium % Na2O	4.17	3.59	5.44
Potassium % K2O	3.22	4.31	4.10
Barium % BaO	0.045	0.070	0.044
Manganese % MnO	0.036	0.097	0.098
Phosphorus % P2O5	< 0.05	< 0.05	< 0.05
Strontium % SrO	0.009	0.01	0.012
Titanium % TiO2	0.075	0.044	0.082
Zirconium % ZrO2	0.01	0.01	0.01
Loss on Ignition	0.48	0.68	0.32
<b>Total Oxides %</b>	<b>97.9</b>	<b>95.8</b>	<b>98.2</b>

Assayer: *[Signature]*



## GEM PROPERTY

### Chemex Sample No.

1.	Hole #8, 849-870	360641
2.	Hole #8, 875-895	360642
	From Hole CC-1?	
3.	1670-1690 ft. - select	360643
4.	1398-1967 ) - random select from two zones 1665-1697 )	360644
5.	1783-1890 ft. - select sample	360645
6.	1800-2007 - select	360646
7.	1918-2007 - select	360647

**GEM MINE**  
**Analysis for Gold (Save pulps)**  
**10-26-88**

Selected split core samples from core boxes at site of storage at junction of Clear Creek and Ore Creek on property.

Note: cores from holes 7 & 8 are 70% spilled on ground.

1	Y	Hole #8	849-870	360641
2.	N	Hole #8	875-895	36092

**T.D. 2007' Bearing 320° Dip?**

AMAX Hole on Clear Creek northwest of portal to main 500' adit. Cores stacked in good order samples selected from split cores

<b>Select sample</b>				
3.	Y	3rd best	1670-1690	360643
4.	Y	Random select - two zones	1398-1467	
		next best	1665-1697	360644
5.	N	Select sample	1783-1896	360645
6.	Y	Best select sample	1800-2007	360646
7.	Y	Select sample	1918-2007	360647

APPENDIX V

CLAIM RECORD FORM "G"

GEM GROUP







