



Energy, Mines and  
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March 28, 1988

D.J. Alldrick  
Geological Survey Branch  
British Columbia Ministry of  
Energy, Mines and Petroleum Resources  
Parliament Buildings  
Victoria, British Columbia  
V8V 1X4

Dear Dani:

As you and Bill requested, I have attempted to cast the GSC Mitchell-Sulphurets project in a general "PIAP" format. I have not included budgetary information because it has not been finalized and will come under 3 separate GSC projects. This plan still has to be ratified by GSC management. I hope that it is worded in such a manner as to indicate the desire to avoid any duplication with your work. The intent is for our projects to be complementary. Hopefully, by the time we reach the final stages of our respective projects we will have had the opportunity to discuss most aspects of the geology of the region.

From the enclosed sketch map, you can see that a lot of the district-scale rock sampling for this project has been carried out by myself. Without this sampling and my geological and mineral deposits-related observations the joint GSC project, as outlined on the "PIAP" form, would be difficult if not impossible. Nevertheless, my participation in this project, in no way, is meant to duplicate your work. As part of your project you are interested in ore genesis and deposit modeling, as are we. Perhaps as our projects progress we will be able to discuss ideas and exchange information on ore genesis and modeling before any final publications.

If you or anybody else has any concerns about our plans please let us know.

Thank you for the mylar copy of your map. It just arrived yesterday.

Give my regards to Jim and others and I hope that your thesis is going well.

Sincerely,

R.V. Kirkham

cc. D.V. Lefebure	S.B. Ballantyne
W.J. McMillan	J.M. Duke
W.R. Smyth	D.C. Findlay
F.G. Hewett	D.C. Harris
R.S. Hewton	H.K. Poulsen
R.G. Anderson	R.F.J. Scoates

Subproject Title - Mitchell-Sulphurets Region, British Columbia - Joint GSC Mineral Deposits Research Study

Principal Researchers - S.B. Ballantyne, D.C. Harris and R.V. Kirkham

Project Numbers - 790003 (SBB), 680023 (DCH) and 700059 (RVK)

Location - NTS 104B/8,9 (see attached sketch map)

Liaison - 1) BCMEMPRS: D.J. Alldrick, J.M. Britton, D.V. Lefebure, W.J. McMillan  
2) GSC: R.G. Anderson, H.K. Poulsen, J.K. Mortensen, F. Robert, W.D. Sinclair, D.A. Walker  
3) Newhawk Gold Mines Ltd.: F.G. Hewett, K. Hicks, T. Drown  
4) Western Canadian Mining Corporation: R. S. Hewton  
5) Catear Resources Ltd.: E.R. Kruckowski  
6) Teuton Resources Corporation: D.M. Cremonese  
7) Sulphurets Gold Corporation: C. Graf.

### Project Statement

The Mitchell-Sulphurets region contains a large, deformed, altered, pyritic, probably Early to Middle Jurassic, porphyry Cu-Mo system with many diverse associated Au and Ag occurrences. This area has been the site of semi-continuous exploration since the early 1960s and is currently being actively explored for precious metals by the companies listed above. The GSC, in collaboration with the companies and the BCMEMPRS, has initiated a project in the area emphasizing litho-geochemistry and systematic mineralogy but including aspects of ore geology and surficial geochemistry.

### Expected Results

- 1) Litho-geochemical data for several ore and related elements on district and mineral occurrence scales.
- 2) Extensive whole rock chemical information on volcanic, intrusive, sedimentary and altered rocks.
- 3) Mineralogical information on district and mineral occurrence scales.
- 4) Documentation of the zonal patterns and interrelationships of metals and minerals.
- 5) Attempted reconstruction of the mineralized system(s), evaluation of their deformational and metamorphic histories and modeling of their original nature(s) and genesis (hopefully to be done in liaison with BCMEMPRS and company geologists?).

### Objectives

The main objectives of this project are to better understand the nature and distribution of precious metals within a large, well-mineralized, complex porphyry Cu-Mo system. The emphasis is on systematic documentation of ore metal and mineral distributions and unraveling the complex post-mineral history of the area in an attempt to model the original nature(s) of the ore-forming system(s). The work is

directed towards aiding exploration in the immediate area and surrounding region and attempting to define general geochemical and mineralogical patterns and models of ore formation that might be applied elsewhere.

#### Past and current work

R.V. Kirkham mapped in the area for Newmont Exploration of Canada Limited during the summers of 1960 and 1961. The 1961 work was used as a basis for a M.Sc. thesis at U.B.C. in 1963. Sampling for this project has been carried out, over a period of about a month by RVK, during the summers of 1986 and 1987, about a month for SBB and DCH during the summer of 1987 and by D.V. Lefebure and company geologists in 1986. Much of the geochemical (>1500 samples) and mineralogical (>500 samples) analytical work has been completed or is underway. A sample of syenite and maroon granite collected in 1986 from the north side of the Mitchell Glacier will be processed for U/Pb zircon dating this spring by J.K. Mortensen. Much field and sample location data are being plotted on 1:5000-scale and compiled on 1:20 000-scale base maps. To date, most GSC fieldwork has been carried out on a more-detailed scale and over a much more limited area than has that of the BCMEMPRS. A number of new Au and Ag occurrences have been identified during the course of this work.

#### Plans for fiscal year 1988/89

About one month (August-September?) will be spent by R.V. Kirkham, S.B. Ballantyne, D.C. Harris and 2 student assistants in the field to complete district-scale and mineral occurrence sampling in the Mitchell-Sulphurets region. Regional sampling will concentrate on those areas, especially the Kerr property, in the "main GSC project area" (outlined on the attached sketch) with low sample density. Some sampling will be carried out in the Treaty Glacier area to cover a new Au showing and known alteration zones (see the attached location map). Field geological and sample location data will be plotted on 1:5000- and 1:10 000-scale base maps. Samples will be prepared in the field for chemical analyses and pertinent data will be recorded on computer code sheets. Every attempt will be made to co-ordinate GSC work and exchange geological field data with BCMEMPRS geologists so that duplication of their geologic mapping, stratigraphic, structural, metamorphic and metallogenetic work will be avoided. The GSC work will concentrate on litho-geochemistry, mineralogy, metal and mineral zonation and unraveling and modeling the original nature(s) of the ore-forming system(s).

Products: Current Research report(s)

Preliminary geochemical and mineralogical reports and distribution maps for companies (possibly some data to be kept confidential for one year).

Talks and displays for GSC Current Activities Forum, Cordilleran Roundup and PDA(?)