

## Mitchell - Sulphurets District Project

<u>Man power</u>	<u>Man Months</u>
Project Officers Mineral Resources Division R.V. Kirkham S.B. Ballantyne D.C. Harris	(field) 4 total
one student assistant	3
<u>Budget (87-88)</u>	\$35,000.00
<u>project area</u>	NTS map sheet 104A, 104B, 103P
<u>liaison:</u>	
(1) British Columbia Ministry of Energy, Mines and Petroleum Resources	
(a) T. Schroeter	Senior Regional Geologist
(b) D. Lefebure	District Geologist, Smithers
(c) D. Aldrick	Project Geologist
(2) Geological Survey of Canada, Vancouver	
(a) R.G. Anderson	Regional Mapping, Cordilleran Geology Div.
(3) Mining and Exploration Companies active in the area	
(a) F.G. Hewett	Newhawk Gold Mines Ltd.
K. Hicks	
N. Tribe	
(b) D. Johnson	Lacana Mining Corp.
D. Dunn	
L. Barker	
R. Wells	
(c) R.E. Meyers	Cassiar Mining Corp.
(d) others	

S.B. Ballantyne  
October 15, 1986

c.c. R.V. Kirkham  
D.C. Harris  
H.K. Poulsen  
E.H.W. Hornbrook  
J.M. Duke  
A.G. Plant  
D.C. Findlay

## Orientation Survey, 1986

### Present Status:

R.V. Kirkham visited the field area summer 1986 and collected a representative regional suite of rock and drill core samples. These are to be processed by S.B. Ballantyne and analyzed for major, minor and trace elements. D. Lefebure is shipping 40 samples of quartz veins and surrounding wall rock for processing by S.B. Ballantyne and similar lithogeochemical determinations will be used to compare with the regional suite. This orientation study will benefit from petrographic and ore mineralogical studies to be conducted this winter by D. Harris. Newhawk Gold Mines Ltd. may also send ore samples from the newly constructed decline for examination by D. Harris. Geochemical results will be sent to D. Lefebure as soon as they are available to assist in his detailed mapping project. Interpretation of detailed and regional data, in the context of the mineralogy as known to date, will help to define primary haloes, ore-signatures, alteration and the methodology to be used in an expanded sampling program during the 1987 field season.

The mining companies will be given the data as it becomes available. D. Alldrick will be supplied with the results so that the planning of his specific geologic traverses, and his examination of features and mineral occurrences can be facilitated.

R.V. Kirkham will be examining and compiling information from company reports, field notes, assessment files, etc. and assisting in the compilation of the geological information to aid interpretation of regional lithogeochemical data.

Firm proposals and strategies for 1987 field work will be made after the orientation survey results and interpretation are forthcoming. The mining companies and B.C.D.E.M. and Pet. Res., suggestions, concerns and specific requirements have been solicited and reorientation of some proposals will probably be necessary after future strategy sessions in January.

Mineral exploration companies have been most supportive (1986) and have indicated a keen interest in future B.C.D.E.M. and Pet. Res. - GSC proposed activities in the area.

D. Alldrick has kindly provided B.C. air photograph information. Excellent photos and blowups have been received. We will provide N.T.S. stable base material for D. Alldrick and D. Lefebure as required.

## Geochemical, Mineralogical, Petrographic Studies, 1987

### Rocks

Collection and analyses of drill core, and rocks including fresh unaltered samples as well as those containing visible signs of sulphide mineralization and/or alteration.

Produce geochemical maps containing the data to show the distribution and abundance of selected elements or ratios of elements and the delineation of areas with anomalous concentrations of these elements. Compilation, statistical treatment and interpretation of the analytical data will be presented with the maps either as marginal notes or as a separate publication. The maps and interpretation could be first published as preliminary open files in the province and at the GSC. Preliminary findings will probably appear in Current Research 1988. Poster presentations may also be considered.

### Talus and oxide - residue samples

To collect and ascertain their viability as sample media as compared to un-weathered outcrop or drill core samples. The heavy minerals in talus-soils will be examined and compared to trace element abundances in gossans. Gold enrichment, leaching and possible solution transport will be examined. The geochemical data sets can be merged and manipulated to produce pertinent geochemical distribution and abundance plots of the combined data (i.e. rock outcrop and talus samples).

Stream Sediments, heavy mineral panned concentrates and placer gold concentrates. Collect, analyze and examine to test their viability as sample media and compare with mineralogical studies of the varying styles of mineralization in the area.

Examine the dispersion characteristics of pertinent elements in the surficial environment and relate them by case-history examples to primary haloes and specific types of mineralization. Define geochemical exploration criteria to be utilized by mining companies in the resource appraisal of the region or specific properties.

Hydrogeochemical Sampling. Collect, prepare and analyze water samples from representative springs, lakes and streams, thus defining selected elemental abundances in this media. Gold in water determinations will be completed to assist in the compilation of a data base for this element in this media and to document the possible gold solution transport in different environments. Pathfinder elements in waters will be compared to those in other media. The data will be interpreted and incorporated into case history-dispersion study examples.

Minerals. Collect, prepare and separate pyrite from ores and altered rocks and determine selected elemental abundances in pyrite to define "primary" or "leakage" haloes around orebodies. This data will be combined with petrogeochemical data compiled by D. Harris during his mineralogical micro-probe studies. Interpret results to ascertain if pyrite geochemistry is a better indicator of proximity to ore or ore-type than whole rock-trace element litho-geochemical sampling or alteration mapping.