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PROPOSED ROCK GEOCHEM STUDY

For

GRANDUC MINES LIMITED

Of The

Mitchell Creek - Sulphurets Creek Area

Of

N. W. British Columbia

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COMPREHENSIVE ANALYSES OF ROCK GEOCHEM MATERIALS FROM THE MITCHELL CREEK - SULPHURETS CREEK AREA OF N. W. BRITISH COLUMBIA.

Two samples of rock material were selected from a diverse group of geological hand specimens representing the above area. The samples were selected on the basis of their pyrite content. The first sample we estimated to contain between 7% and 10% pyrite. This sample was identified by the marking S-8 and without detailed geological examination appeared to be an altered sediment. The second sample we estimated to contain less than 0.10% pyrite, and was identified as sample No. SW-76C-68.

We have not made any attempt to identify the rock type but have rather determined a large number of elements for each species of material in an attempt to isolate a group of elements which can be used to conduct a meaningful rock geochem survey.

We have assumed that the pyrite content is directly related to the intensity of hydrothermal alteration. This also assumes that the relative abundance of pyrite can naturally vary from one rock species to another.

We anticipate that the study of these rock materials will indicate severe ratio inversions in some of the heavy elements present in the samples. We hope that such indications will prove that several elements can be used to trace horizontal and vertical halo patterns around the areas of greatest economic importance.

SAMPLE PREPARATION:

Each rock sample weighed approximately one pound. A representative portion of each sample was sectioned off with a diamond saw and will be used for geological examination after completion of the chemical analyses. The major portion of each sample was crushed and pulverized. Crushers, pulverizers are cleaned with inert material between samples. (Care must be taken to control contaminating factors. Some of the rock geochem materials will contain large quantities of sulfides and on occasion carbonate materials.) Sample contamination can be partially controlled in the field by taking only fresh rock materials. Hydrated oxides of iron and manganese tend to coprecipitate heavy metals on the surface of oxidized rock material.

TABLE 1.

SAMPLE ANALYSES:

Trace element	ppm in SW-76C-68*	ppm in S-8**	Ratio of Trace Elements ppm(SW-76C-68) / ppm (S-8)
Copper	1200	194	6.8
Molybdenum	72	6	12.0
Antimony	295	36	8.19
Arsenic	5	400	0.02
Mercury	40 ppb	50 ppb	-
Lead	22	120	0.18
Zinc	48	20	2.40
Silver	0.8	2.8	0.28
Gold	<30 ppb	<30 ppb	-
Cobalt	14	42	-
Nickel	12	44	-
Manganese	727	1065	-
Chromium	12	25	-
Vanadium	200	100	-
Bismuth	12	20	-

* Sample - low pyrite content, secondary Cu present.
** Sample - highly pyritized.

TABLE 2.

SAMPLE ASSAY MAJOR CONSTITUENTS	% in SW-76C-68	% in S-8
Sulfur	0.06	7.46
Silica	58.7	48.2
Calcium	0.28	1.1
Iron (Acid soluble)	3.20	7.50
Iron (Total)	3.95	8.44

Immediate conclusions on behalf of Cu, Mo, Sb can be obtained from the results shown in table 1. Copper, Molybdenum and Antimony show a very positive response on sample SW-76C-68 (low pyrite) and are discernably absent from the rock specimen containing high pyrite (S-8). Sample SW-76C-68 is apparently closely associated with an area of copper mineralization. Conversely, sample (S-8) would for the same reason appear unrelated to SW-76C-68 and more likely represents altered material not associated with the same period of hydrothermal enrichment. The low copper content in sample S-8 containing such an abundance of pyrite would tend to add weight to this conclusion. Other elements of interest are Arsenic and Lead. Both show a negative correlation where Cu, Mo and Sb were very positive. These five elements appear to exhibit characteristics which would provide valuable data on elemental zoning. Of peripheral interest is the Zinc content. Mercury did not produce any detectable trend on the basis of two possibly unrelated samples.

Table 2 confirms the high content of pyrite observed in sample S-8. Iron content in sample SW-76C-68 appears to be present in a non-sulfide form.

A rock geochem survey could be conducted to satisfactory conclusion by carefully controlling the sample medium (consistency in sampling) and by the trace metal analyses of Cu, Mo, Sb, As, Pb and Au. possibly Hg and Ag. Further work on Mercury would be necessary to determine its worth in such a rock geochem program. Other elements analyzed in the two samples would tend to indicate that they are present in no more than normal amounts.

SAMPLING OF ROCK GEOCHEMICAL MATERIALS:

A previous report, (F.D.Forgeron, Ph.D. Bondar-Clegg & Co. Ltd.) indicates that stream sediments and talus samples cannot be effectively used to determine the presence or location of ore grade mineralization in the Mitchell Creek - Sulphurets Creek area. Bedrock samples on the other hand, proved to be quite useful even though sufficient sampling was not conducted.

In order to accurately locate all primary and secondary halos around possible ore zones, the sample density should vary from a 200' x 200' grid over areas of primary interest to a 400' x 400' grid in areas of secondary interest. The total number of samples proposed is approximately 800 - 1000.

All rock samples should consist of 1-2 lbs. of fresh bedrock material (preferable unleached - unoxidized) taken as close to the grid point as reasonable. Rock type should take priority over location. The rock type sampled therefore should be as representative and continuous over the entire area as possible. In any case careful notation of rock type, geologic and geographic features can be carried out at a later date on the representative rock slab trimmed off the sample prior to its preparation for geochemical analysis.

COST - PREPARATION (Rock Geochem)

1. Sample cutting - $0.50/sample.
2. Crushing and pulverizing @ $0.75/sample.

ANALYTICAL (Rock Geochem)

1. Cu, Mo, As, Pb, Sb @ $4.25/sample.
2. Mercury @ $2.00/sample. (limited analyses until proven useful)
3. A 10% discount will apply where 800 to 1000 samples are processed.

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