



Energy, Mines and
Resources Canada

Énergie, Mines et
Ressources Canada

Earth Sciences

Sciences de la Terre

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Your file Votre référence

Our file Notre référence

September 27, 1985

Dr. Ken Dawson
Geological Survey of Canada
100 West Pender Street
Vancouver, B.C.
V6B 1R8

Dear Ken:

Sorry to be so long getting back to you on your letter of 1 August but I've been in the field until only a few days ago. I have shipped your 3 samples back to you as you requested. Our mineral separations have lately been very slow as a result of some people being sick and unfortunately there is nothing we can do about it.

2925
2929
2913

I have looked at your request for K-Ar, Rb-Sr, and U-Pb dates and I have many comments.

First of all, I prefer better documentation for projects justifying why they are good projects and important for us to consider working on, particularly for U-Pb work. Yours are insufficient to ascertain whether the rocks were carefully collected with well-understood field relations, and whether the results would be capable of yielding the information requested. I have enclosed what I consider to be a well-thought out submission with a good geologic rationale reflecting an understanding of the capabilities of the various dating methods requested.

Let me explain why many of your samples are inadequate and I feel should be rejected.

DY 2975 (Diorite dyke with xenoliths and xenocrysts).

This type of rock would under almost all circumstances contain no magmatic zircon; there may be extraneous zircons as xenocrysts which would make the systematics most complicated. Therefore, you can't get your answers anyway.

Dy 2930 (dense greenstone).

The same applies - this rock, just like a basalt, will contain no zircons. Have you ever read of a greenstone dated by U-Pb zircon? I suggest you do a zircon test on a chip of any such mafic rock and find some before submission since the chances are very high that mafic diorites, greenstones, etc. do not have zircon.

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Canada

DY 3033.

This rock, although there is a small chance it might yield zircon, is badly weathered, insufficient in size after it was trimmed of crappy material. Your submission describes nothing about the observed relationships of this rock relative to the problem you wish to solve. We require this for all zircon projects.

DY 2928, 2931, 2927, 2926.

These are all carbonate samples submitted for Rb-Sr analysis WR isochron. I don't know where you get the idea that one can do WR isochrons on Ca-Mg carbonates; calcite has virtually no Rb.

DY 2967, 2966, 2954, 2953 (fuchsite + musc bearing???)

The green mineral in 2 of these altered samples is extremely fine-grained; I don't know how we can be expected to make a good quality mineral separate from this material. We do not work on materials unless they are good quality separates. Whole rock K-Ar dates on fine grained altered rocks, by and large, will be rejected on principle since you don't know what the date will mean.

Samples 2966 and 2953 contain no green mica in significant amounts, no muscovite either, and are rejected on similar grounds.

You mentioned that thin sections were made of these rocks. I would be surprised if the grain size of any green mica exceeded 20-30 microns.

You must make an effort to demonstrate by other than a visual guess, the presence of the mineral requested, if it is at all small. It has to be large enough to be separated.

I am sorry if this sounds pessimistic but our attitude about dating rocks differs significantly than it did >4 years ago when all samples would be processed on a "service" basis. Those days are gone hopefully forever.

All zircon projects are carefully scrutinized by either one of the scientists here or the Cordilleran GSC geochronology committee for significance, quality of sample, reliability of field relations and interpretability. We will generally do K-Ar dates on most things submitted as long as we can produce a good mineral separate. A Rb-Sr project must be sensible and capable of yielding an answer. Only three of the 16 samples you submitted satisfy these requirements (2 biotite granites, 1 rock with visible muscovite-sericite alteration); one is on its way back to you and the other two are approved.

2913 - Stuart Bath.

2958 - unmineralized stock, Cokinzme, Athlu

2957 - Sericite-enveloped qtz-moly vein in above stock.

If you choose to submit further samples, please do so with the above points clearly in mind. Also much time could have been saved if you had discussed this submission in detail early in the game instead of delivering 4 pails of rock to my office without comment or documentation. Not much happens here to samples which no one takes an interest in; the collaborative (geologist-geochronologist) aspect is therefore very important.

We consider it better to scrutinize all submissions so that those who go through the channels with well-documented proposals don't feel they are being treated unfairly.

Sincerely,

A handwritten signature in cursive script, appearing to read "Randy".

Randy Parrish

Encl.