ARROWSTONE PROJECT

PETROGRAPHY OF NICOLA GROUP SOUTH OF MOWICH LAKE,

DEADMAN RIVER, SOUTHERN BRITISH COLUMBIA

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June 12, 1988

GEOTEX CONSULTANTS LIMITED CONSULTING GEOLOGISTS

PETROGRAPHY OF NICOLA GROUP SOUTH OF MOWICH LAKE, DEADMAN RIVER, SOUTHERN BRITISH COLUMBIA

1. INTRODUCTION:

J.F. Bristow of Rooi Enterprises Ltd., 3431 Bowen Drive, Richmond, B.C. submitted three samples for thin section examination. The samples come from the Nicola Group on the west side of Deadman River valley about 2 miles south of Mowich Lake. Two of the samples (45817 and 45818) are amygdaloidal augite porphyry metabasalt flows in which Sample 45817 has chalcopyrite- and pyrrhotite-filled amygdules. The third sample (45816) is a most unusual riebeckite-bearing quartz-albite porphyry which could be either a flow or hypabyssal intrusion and may not even belong to the Nicola Group.

Samples 45817 and 45818 have metamorphic mineral assemblages composed of chlorite-actinolite-epidote-calcite-albite which is typical of the chlorite zone of the greenschist facies. The riebeckite-quartz-albite assemblage of Sample 45816 has a broader stability range which includes the chlorite zone.

2. DESCRIPTION OF SAMPLES:

(a) Sample 45816:

Medium to dark grey quartz (5%) albite (5%) porphyry with 8% radiating tufts of riebeckite.

Thin Section:

A. Phenocrysts:

1. Albite (5%):

Very sparsely sericitized, unzoned euhedral laths up to 2 mm long which yield a flat-stage composition determination of An_4.

2. Quartz (5%):

Uniaxial positive euhedral grains 0.6 mm in diameter.

3. Sphene (a few grains):

Large 1 mm long, euhedral prismatic grains with usual extreme positive relief and birefringence.

4. Riebeckite (8%):

Parallel, length-fast, strongly pleochroic X = strong indigo blue, Y = Z = lavender blue radiating tufts 0.4 mm in diameter which are present in both matrix and phenocrysts. The tufts have anomalous berlin blue to reddish brown interference tints.

B. Matrix (80%):

Fine albite laths and quartz.

C. Alteration (1%):

Carbonate forms shapeless, untwinned grains 0.2 mm in diameter which are sparsely distributed.

Remarks: The presence of riebeckite in rocks mapped as Nicola Group has never been reported before. Although its presence does not have the metamorphic pressure significance that glaucophane does, it does however indicate a sodium-rich rock.

(b) Sample 45817:

Medium grey-green 4 mm in diameter amygdaloidal (chlorite, albite, chalcopyrite, pyrrhotite) augite porphyry metabasalt flows.

Thin Section:

A. Amygdules (30%):

Circular fillings up to 4 mm in diameter which are composed of:

1. Epidote (4%):

Colourless to yellow-green pleochroic prisms up to 2 mm long and is a common filling in the middle of the amygdules.

2. Actinolite (½%):

Rare pleochroic bluish-green prismatic fibers up to 0.3 mm long present as a minor constituent on the rims of a few amydgules.

3. Albite (10%):

Shapeless to lath-shaped, sericite-flecked grains 0.4 mm in diameter which are rarely twinned. No grains are suitably oriented for a composition determination.

4. Chlorite (7%):

Pale green to colourless, pleochroic flakes with clove brown anomalous interference tints.

5. Calcite (5%):

Shapeless, untwinned grains 0.2 mm in diameter.

6. Apatite (¼%):

Rare anhedral grains to 0.2 mm in diameter

7. Opaque Minerals - pyrrhotite and chalcopyrite (3%):

Shapeless clots to 5 mm in diameter filling amygdules. The first mineral is moderately hard and magnetic, and the other moderately soft and strong brassy yellow.

B. Phenocrysts:

1. Augite pseudomorphs (10%):

Stubby prisms 1 to 1.5 mm long now totally replaced by actinolite.

C. Matrix (60%):

Composed of laths to 0.2 mm long, now composed of actinolite and derived from either plagioclase or slender augite prisms, and finely disseminated opaque minerals less than 0.01 mm in diameter.

(c) Sample 45818:

Medium grey-green amygdaloidal (albite, chlorite) porphyritic (augite) metabasalt flow with malachite-coated fractures.

Thin Section:

A. Amygdules:

1. Albite (15%):

Slightly cloudy, shapeless grains with uncommon polysynthetic twinning with no grains suitably oriented for a composition determination.

2. Chlorite (5%):

Light green to colourless flakes 0.2 mm long with anomalous clove brown interference tints and negative elongation.

3. Epidote (¼%):

Colourless prisms at the centre of a few amygdules

B. Phenocrysts:

1. Augite pseudomorphs (1%):

A few stubby pseudomorphs after augite 0.5 mm long which are now composed totally of actinolite.

C. Matrix (79%):

Composed of finely disseminated (0.01 mm in diameter) opaque minerals, fibrous prismatic actinolite, and lath-shaped to shapeless plagioclase grains.

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TO Iron River Resources

600 - 890 West Pender Street

Vancouver, B.C. V6C 1J9 Attention: Dan Berkshire

Certificate No. K 8849

Date May 13, 1988

I hereby certify that the following are the results of assays made by us upon the herein described _____ samples

Kral No.	Marked	Au	Ag	Cu
		ozs/ton	ozs/ton	percent
1.	45807	.002	.08	3.85
2.	45808	.006	.11	1.10
3.	45809	* .011	.11	.98
4.	45810	.029	.17	1.12
5.	45811	* .274	9.52	63.8
6.	45812	.162	8.22	56.7
7.	45813	* .539	8.10	56.9
8.	45814	.144	7.99	55.2
9.	45815	.138	8.52	57.8

L means "less than"

* Sample has been screened and found to contain coarse gold. See Below.

NOTE
Rejects retained three weeks
Pulps retained three months
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I hereby certify that the following are the results of assays made by us upon the herein described _____ samples

Kind No	Marked	% Weight	Au	Comb Au						
3.	45809 -100 mesh	99.73	.006	.011						
	45809 +100 mesh	.27	2.04							
5.	45811 -100 mesh	99.93	.268	.274						
	45811 +100 mesh	.07	8.62							
7.	45813 -100 mesh	99.74	.412	.539						
	45813 +100 mesh	.26	49.7							

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Pulps retained three months
unless otherwise arranged

Derek A Blundell

Registered Assayer, Province of British Columbia