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| **MAP NO.** | **ASSESSMENT REPORT** | **X** | **DOCUMENT NO.:** | 092101 |
| | **PROSPECTUS** | | **MINING DISTRICT:** | WHITEHORSE |
| | **CONFIDENTIAL** | | **TYPE OF WORK:** | GEOLOGICAL |
| 105 K 6 | **OPEN FILE** | | | |

**REPORT FILED UNDER:** Curragh Resources Inc.

**DATE PERFORMED:** September 19-23, 1987 **DATE FILED:** February 22, 1988

**LOCATION:** **LAT.:** 62°18.4'N **AREA:** Faro

**LONG.:** 133°17.4'W **VALUE $:** 1,500.00

**CLAIM NAME & NO.:** RR 1-3 YA86414-416

**WORK DONE BY:** L.C. Pigage

**WORK DONE FOR:** Curragh Resources Inc.

| DATE TO GOOD STANDING | | **REMARKS:** #32 RR |
|---|---|---|
| | | |
| | | |
| | | |

Indian and Northern Affairs Canada | Affaires indiennes et du Nord Canada

OFFICE OF THE REGIONAL MANAGER MINERAL RIGHTS FEB 22 1988 WHITEHORSE YUKON TERRITORY

# TRANSMITTAL FORM

M.R. file no. 340-13-2
R.M.M.R. file no.
Date forwarded

From ▶ Mining Recorder at: Whitehorse

To ▶ Regional Manager, Mineral Rights at Whitehorse, Y.T.

For action are:

- ☐ NEW APPLICATION FOR PLACER LEASE TO PROSPECT — Name
- ☐ RENEWAL APPLICATION PLACER LEASE TO PROSPECT — Name — Lease no.
- ☐ AFFIDAVIT OF EXPENDITURE ON PLACER LEASE — Name — Lease no.
- ☐ SECURITY DEPOSIT
- ☐ FINANCIAL ABILITY
- ☐ ASSIGNMENT OF PLACER LEASE NO. — From — To
- ☐ GROUPING APPLICATION UNDER SEC. 52(2) PLACER MINING ACT. — Owner
- ☐ DIAMOND DRILL LOGS — Claims — Claim sheet no.
- ☑ QUARTZ ASSESSMENT REPORT — Claims: RR 1-3 — Claim sheet no.: 105-K-6
  - Type of report: Geological
  - Submitted by: Curragh Resources Inc.
  - Cls. work performed on: RR 1-3
  - $ req. for ren. application: $1500.00

Signature

REPLY ACTION

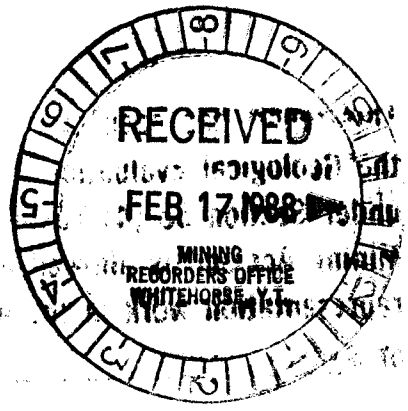
Date returned: 17 FEB 1988
24 Feb. 88

Approved for amount required.

Signature

802-6027-26 (6-86)

092101




# GEOLOGICAL REPORT
# RR CLAIM GROUP

Whitehorse Mining District
Yukon Territory

N.T.S. 105-K-6

Latitude: 62° 18.4'N
Longitude: 133° 17.4'W

By:

L.C. Pigage, Ph.d.

CURRAGH RESOURCES INC.
December, 1987

---

Field work completed from September 19 - 23, 1987

092101

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 1500.00 .

T. J. Bremner

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

TABLE OF CONTENTS

## LIST OF FIGURES



## LIST OF TABLES

# LIST OF CLAIMS

| Claims | Grant Numbers | Recording Dates |
|---|---|---|
| 1-3 | VA 86414-416 | December 28, 1984 |

## INTRODUCTION

The RR claim group, consisting of three contiguous claims, was staked in December, 1984. They are located immediately northeast of the Mine Access road approximately 13 kilometres north of the Faro townsite turnoff (Figure 1). Access is readily accomplished by traversing from the Mine Access road. Elevations range from 1175 - 1260 m. ASL.

## PREVIOUS WORK

No work has been completed on the claims after they were staked in 1984.

## 1987 FIELD PROGRAM

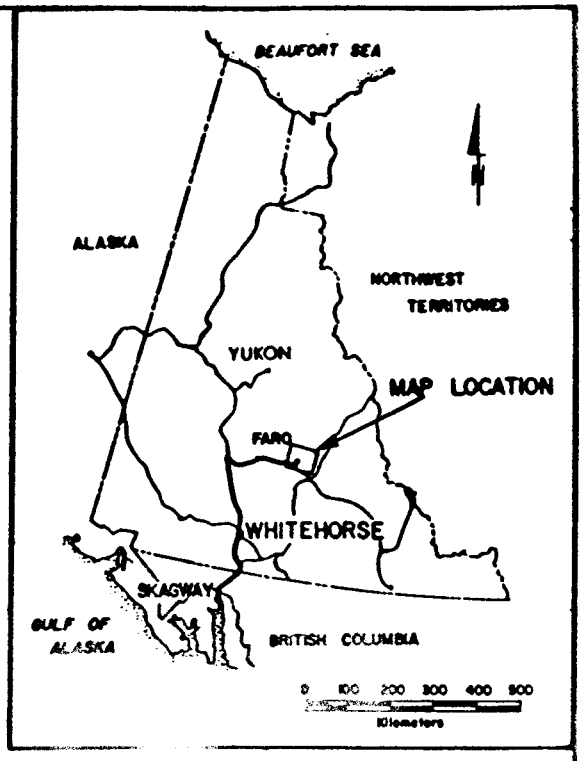
The RR claims lie along the curvilinear trend outlined by the known stratiform, massive sulphide deposits in the Anvil District. Potential therefore exists for the occurrence of mineralization on the claim group.

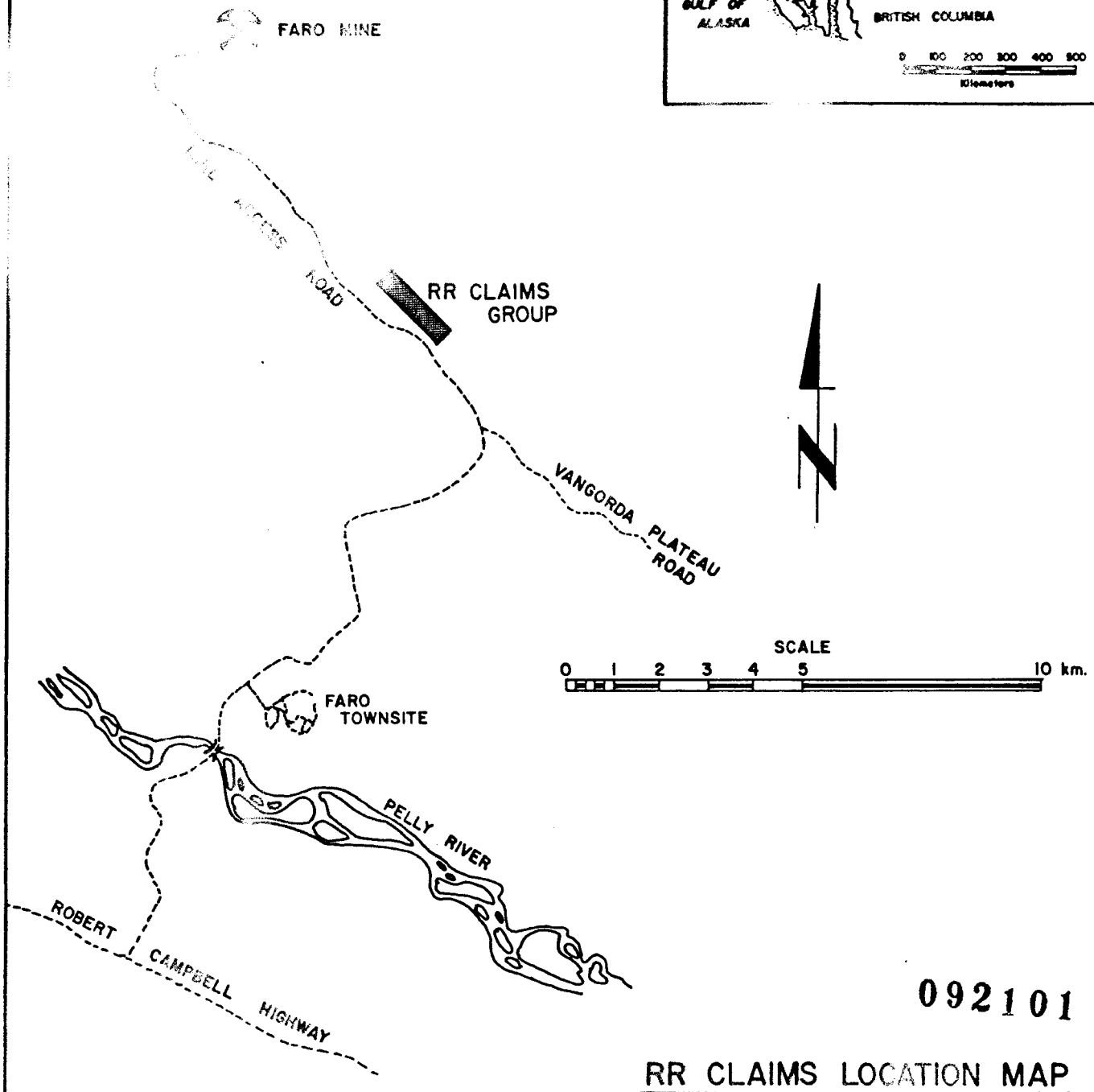
Three days of geological mapping were completed in an area encompassing the RR claims during the interval September 19-23, 1987. Thin sections were prepared from 16 samples of representative rock types encountered during the geologic field mapping. These thin sections were described during the interval December 22-24, 1987. Figure 2 displays the geologic map based on the field work. Thin section descriptions are contained in the Appendix.

092101

FIGURE 1. Location Map

Curragh Resources Inc.




092101

RR CLAIMS LOCATION MAP

# REGIONAL GEOLOGY

## INTRODUCTION

A detailed summary of the geology of the Anvil District is contained in the recent paper by Jennings and Jilson (1986). The following summary pertains more specifically to the geology encountered in the area of the RR claims.

## STRUCTURE AND METAMORPHISM

The Anvil District is a complex polymetamorphic, polydeformed terrane. Lithologic units of the district contain evidence for at least five deformation phases; the first two phases are most significant in that they are penetrative and are accompanied by regional metamorphism. The most prominant fabric element is a shallowly dipping foliation commonly sub-parallel to compositional layering. At higher structural levels this foliation is a well-developed evenulation cleavage which clearly identifies it as having formed during the phase two deformation. At lower structural levels the earlier S1 foliation surface has been totally transposed into this dominant S2 axial plane foliation.

The metasediments are domed to form a northwest-trending culmination cored by Cretaceous granites of the Anvil plutonic suite. Metamorphic grade decreases in intensity radially outward from the granite core and ranges from sillimanite-muscovite zone in amphibolite facies to chlorite-muscovite zone in greenschist facies. Intrusion of the Anvil plutonic suite is coeval with the

regionally developed phase two deformation and metamorphism.

## STRATIGRAPHY

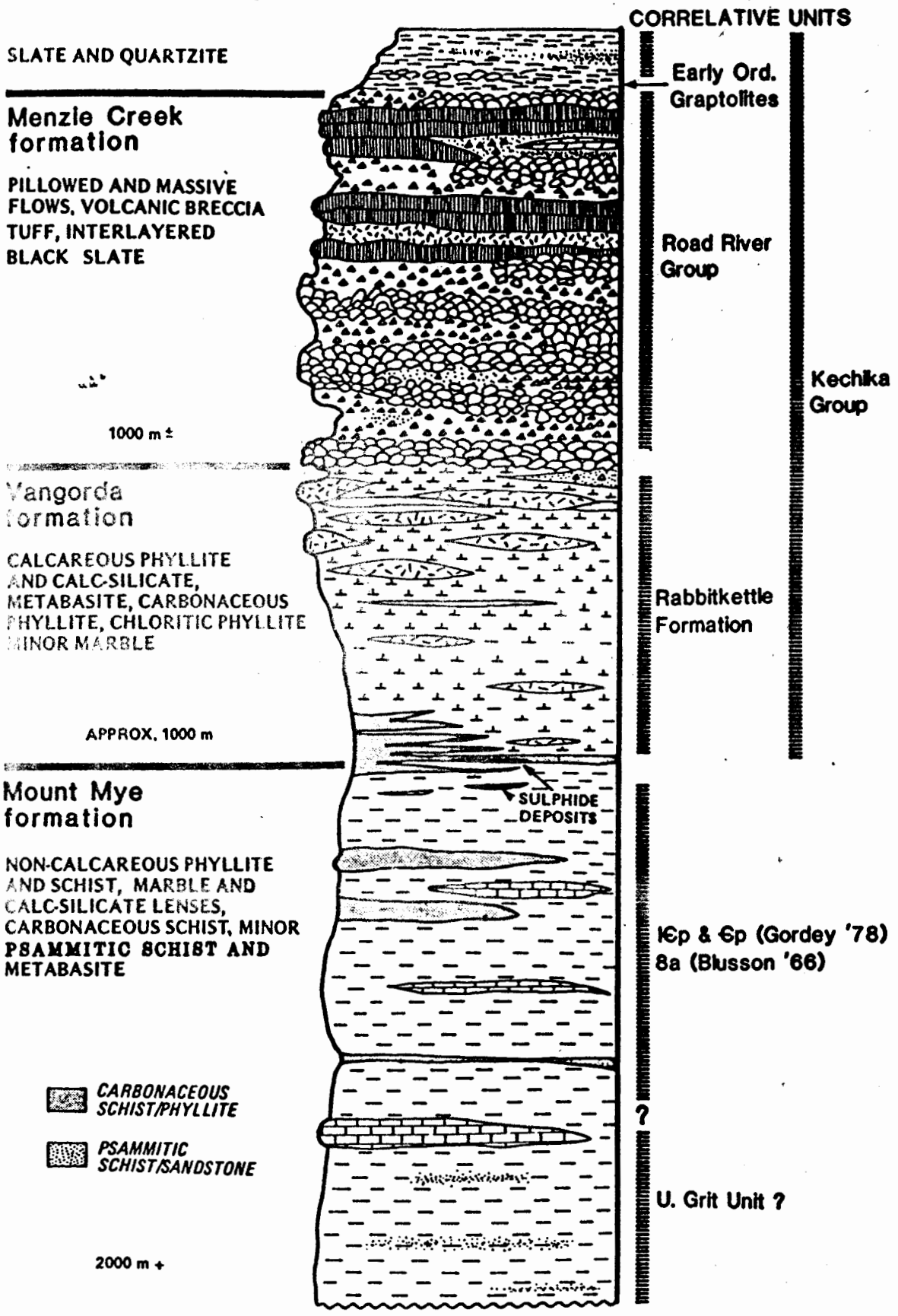
The stratiform, massive sulphide ore deposits of the Anvil District formed in the early Palaeozoic - late Proterozoic shale-rich sediments of Selwyn Basin, a major northeasterly convex embayment in the North American miogeocline. Figure 3 summarizes the stratigraphic sequence of the Anvil District containing the ore deposits. Informal formational names are used to describe the pertinent strata. The sulphide deposits occur at the transition from the Mount Mye formation to the Vangorda formation. Figure 3 also indicates correlative regional units mapped in other parts of Selwyn Basin.

One of the major problems in mapping lithologic units in the Anvil District is the variable metamorphic overprint. Cyprus Anvil geologists developed a detailed alphanumeric coding scheme for field mapping and core logging in the district. This code is presently being used by Curragh Resources Inc. geologists. Table 2 lists the lithologic coding for the different formations. Note that the codes delineate differences in metamorphic grade as well as stratigraphic sequence.

### Mount Mye formation

The Mount Mye formation consists dominantly of non calcareous muscovite-chlorite phyllite to biotite-muscovite schist, depending on metamorphic grade. Colours range from medium grey to purplish

FIGURE 3. Anvil District stratigraphy for interval containing stratiform ore deposits




092101

Table 2. Anvil District Lithostratigraphic Code

Intrusive Rocks

| | |
|---|---|
| 10AB | Anvil Batholith (Cretaceous granite) biotite-K-feldspar-plagioclase-quartz±muscovite±hornblende granite |
| 10E | Anvil dyke suite biotite-hornblende-plagioclase diorite |
| 10F | Anvil dyke suite smoky quartz-feldspar porphyry |

[illegible] formation

[illegible]schist facies

| | |
|---|---|
| 5A | variably calcareous, graphitic phyllite (basal member) |
| 5B | calcareous muscovite-chlorite±biotite phyllite |
| [illegible] | metabasite / amphibolite |
| [illegible] | homogeneous chloritic phyllite |
| [illegible] | phyllitic marble and silicated marble |
| 5F | laminarly banded, variably calcareous, chloritic phyllite |
| 5G | variably calcareous, graphitic phyllite |

amphibolite facies

| | |
|---|---|
| 3D | biotite calc-silicate schist (metamorphic equivalent of 5B) |

Mt. Mye formation

greenschist facies

| | |
|---|---|
| 3G | noncalcareous muscovite-chlorite±biotite phyllite |
| 3F | calcitic marble and silicated marble |
| 3E | graphitic phyllite |
| 3C | metabasite / amphibolite |
| 3B | chloritic pyllite |

amphibolite facies

| | |
|---|---|
| 1H | chloritic schist |
| 1G | calcitic marble and silicated marble |
| 1F | metabasite / amphibolite |
| 1E | graphitic schist |
| 1D | slightly carbonaceous biotite-muscovite schist |

(contains relict sheaves of andalusite)

1C quartzo-feldspathic biotite-muscovite schist to gneiss

1B tactite and silicated marble

brown. The unit typically weathers to a rusty brown. Important interlayered rock types are carbonaceous phyllite or schist, calcitic marble, thinly banded biotite calc-silicates, and weakly to strongly foliated chlorite-calcite schists and amphibolites. The carbonaceous pelites, chloritic schists, and amphibolites are more abundant near the top of the formation. Marble and calc-silicate schists most commonly occur 200-400 meters below the top of the formation.

[illegible]tion

In the greenschist facies zone, the Vangorda formation is characterized by grey muscovite-chlorite phyllite very thinly interlaminated with light grey quartz-calcite bands thought to be derived from siltstone beds and laminae. Although typically calcareous, the quartz siltstone bands are locally dolomitic or non calcareous. In areas of higher grade metamorphism, the calcareous phyllite is transformed to a thinly and discontinuously banded, pervasively foliated, green, cream and purplish brown biotite calc-silicate. From Table 2 it can be seen that the same code is used for calc-silicates in the Mount Mye and Vangorda formations; this overlap occurs because these lithologies cannot be readily distinguished in the field.

Interlayered rock types are carbonaceous phyllite, siliceous carbonaceous phyllite, calcitic marble, and weakly to strongly foliated chlorite-calcite schists and amphibolites. Relatively pure calcitic marble is a very minor lithology in the Vangorda formation. Carbonaceous members of the Vangorda formation occur

throughout the stratigraphic interval; the thickest and most extensive member is at the base of the formation. The most abundant subordinate lithology of the Vangorda formation is amphibolite (metabasite). Metabasite occurs in lens-shaped bodies with interiors often preserving relict diabasic textures.

Massive sulphide deposits

The Anvil ore deposits are of the sediment-hosted, stratiform, assive pyritic sulphide type. They occur as one or more sulphide lenses through a 150 meter interval straddling the boundary of the Mt. Mye and Vangorda formations. Typically they are associated with discontinuous, regionally developed, carbonaceous, silicious phyllite/schist units.

Anvil plutonic suite

Reconnaissance mapping has delineated 3 intrusive phases in the Anvil plutonic suite (Pigage and Anderson 1985). The Mount Mye phase is predominant in the area immediately northeast of the RR claims. It is a peraluminous biotite-muscovite granite. Rb/Sr and K/Ar isotopic dates give a consistent cooling and intrusive date of 100 Ma. The granite typically contains the S2 foliation and is presumed to be intruded synkinematically during the phase 2 deformation.

1987 FIELD PROGRAM RESULTS

## INTRODUCTION

The southwest margin of the Anvil Batholith extends immediately east of the RR claims (Figure 2). Overlying the granite of the batholith are metasediments correlating most consistently with the Mount Mye formation as mapped elsewhere in the Anvil District. Three distinctive map units were recognized in the mapped area. Structurally from lowest to highest these are:

1.) a heterogeneous unit consisting of interlayered argillaceous calcitic marble (1G), biotite calc-silicate (3D), and biotite schist (1C).

2.) non calcareous biotite-muscovite schist (1C).

3.) homogeneous, massive calcitic marble (1G).

All lithologies contain a pervasive axial planar foliation which dips uniformly to the southwest. Detailed petrography and regional correlation indicates this schistosity formed during the D2 deformation event. No evidence was found for major structural or stratigraphic repetition in the area of the RR claims. The following sections provide more detailed descriptions of the lithologic units.

## STRATIGRAPHY

### Anvil Plutonic Suite

The Anvil Batholith consists of an equigranular, medium-grained, biotite-muscovite granite. Granite outcrops contain a pervasive, poorly defined foliation delineated by ribbon

quartz and orientation of muscovite and biotite. This foliation is concordant with the pervasive schistosity developed in adjacent metasediments.

Metasediments immediately overlying the batholith contain numerous sills and dykes of granite up to 1 meter thick. Locally these dykes and sills are aplitic to pegmatitic in texture. The granite dyke located at station 87-94 is an aplitic muscovite granite containing local pegmatite.

The contact between the batholith and the overlying metasediments is considered to be a deformed intrusive contact. No macroscopic deformation textures typical for fault contacts (S-C bands or mylonites) were observed. The common occurrence of granite dykes and sills adjacent to the batholith also supports an intrusive contact.

1G - 1C - 3D (lowest unit)

Immediately overlying the granite is a heterogeneous unit containing the interbanded lithologies argillaceous calcitic marble (1G), biotite calc-silicate (3D), and biotite schist (1C). An individual outcrop may contain one or more of these lithologies; interbanding typically ranges from a few centimeters to about 10 meters in thickness.

Lithology 1G in this unit consists of a medium grained grey calcite which weathers to a dark brownish grey. Weathered outcrops typically have a white calcareous drusy coating. The marble contains abundant 1 - 3 cm thick lenses and bands of purplish brown biotite schist, dark green hornblende calc-silicate, and pale green

calc-silicate. These silicate layers are extensively boudinaged within the dominant schistosity and locally constitute up to 50% of the unit.

Microscopically the marble consists of coarse, interlocking calcite grains with interstitial aggregates of silicates. The typical metamorphic mineral assemblage is:

calcite-quartz-plagioclase-sphene-epidote/clinozoisite-diopside±hornblende±K-feldspar±scapolite

Calcite contains numerous deformation twins. Hornblende typically occurs as small, irregular aggregates partially to completely enclosed by diopside. The presence of K-feldspar is indicated principally by staining with sodium cobaltinitrate; it could not be readily distinguished optically.

Pelitic lenses within the marble contain the general assemblage:

biotite-quartz-plagioclase-opaques-tourmaline±sphene ± chlorite±hornblende

Biotite is partially to completely retrograded to chlorite. Sphene commonly forms partial rims around the opaque minerals. Hornblende typically occurs in thin zones between pelite and carbonate bands. Grain size is distinctly smaller than for enclosing carbonates.

Lithology 3D in this unit consists of a fine grained, dark purplish brown, biotite schist with thin, pale green calc-silicate bands. Banding is on a scale of 0.5 - 3 centimeters. Proportions of pelite and calc-silicate range from nearly pure schist to nearly pure calc-silicate. Locally the calc-silicate bands contain small lenses of dark green, hornblende-rich silicates. This lithology typically weathers as resistant, dark brown, angular outcrops. It

usually occurs in association with the recessive weathering, calcitic marble described above.

The pelitic matrix for 3D contains the metamorphic assemblage:

biotite-quartz-plagioclase-opaques-tourmaline±muscovite± K-feldspar±sphene±garnet

Biotite is locally retrograded to pale green chlorite. The presence of K-feldspar is indicated largely by staining with sodium cobaltinitrate.

Calc-silicate bands typically consist of the mineral assemblage:

calcite-quartz-plagioclase-epidote/clinozoisite-sphene± diopside±hornblende±K-feldspar.

Hornblende occurs principally along marginal contacts of calc-silicate bands with pelite bands. Calcite occurs only in minor amounts as interstitial grains. K-feldspar is delineated mainly through staining methods.

Immediately adjacent to the Anvil Batholith, unit 3D forms the dominant lithology. It is typically finely laminated in shades of green and contains large porphyroblasts of dark red garnet.

Lithology 1C in this unit consists of a medium to coarse grained, dark brown, biotite schist. Typically it weathers to a light tan-brown. The pervasive foliation is strongly defined by alignment of the biotite.

One sample of the schist located near the Anvil Batholith contact was prepared for petrography. The metamorphic mineral assemblage in this sample is:

biotite-quartz-plagioclase-staurolite-sericite-tourmaline-opaques.

Biotite is incipiently retrograded to chlorite. Staurolite occurs as irregular cores in fine sericite aggregates. Abundant fine sericite also forms subhedral pseudomorphs of former porphyroblasts. Identity of the former mineral is uncertain; it may have been either staurolite or andalusite. Tourmaline in this sample occurs in amounts more extensive then is common for schists. This sample does not have matrix muscovite. Sillimanite or fibrolite are not present in the sample.

Figure 2 indicates that this map unit has a structural thickness of at least 285 meters. The lower contact is the intrusive margin of the Anvil Batholith. The upper contact appears to be conformable with the overlying unit. The calcareous nature of this unit and the common occurrence of calc-silicate lithologies suggest that it may be correlated with the Vangorda formation. The Vangorda formation, however, does not typically contain the abundant marble interlayers noted in this sequence. Therefore this unit should be correlated with the marbles and calc-silicates in the lower part of the Mount Mye formation. The common occurrence of K-feldspar in the marbles and calc-silicates may be a useful tool for correlating this unit in the Anvil District.

1C (middle unit)

Overlying this heterogeneous unit is a non calcareous, dark brown, biotite schist. The schist is compositionally banded on a small scale with coarser grained, more micaceous intervals and finer grained, more quartzo-felspathic intervals. The dominant foliation is pervasively delineated by a strong biotite

orientation. Foliation surfaces typically weather to a silvery grey. The schist contains pegmatitic white quartz veinlets; these veinlets often contains coarse aggregates of pale pink andalusite partially coated with muscovite. Matrix andalusite in the schist is commonly noted in outcrop as large resistant, randomly oriented prisms on the foliation surface. Staurolite is visible as small brown prisms. Staining for K-feldspar indicates it is not present. The metamorphic mineral assemblage consists of:

biotite-muscovite-quartz-plagioclase-staurolite-tourmaline-opaques±garnet±andalusite.

Staurolite and garnet form idiomorphic porphyroblasts with inclusion trails of fine quartz and opaques. In most cases inclusion trails are straight to slightly crenulated and are parallel to the dominant external foliation. In sample 87-47 inclusion trails in garnet are locally at a high angle to the external foliation and probably preserve a earlier relict deformation fabric.

Biotite and muscovite form smaller matrix grains defining the dominant foliation. Biotite also forms larger prophyroblasts which are not parallel to the foliation. These porphyroblasts are truncated at grain ends by the external foliation. Inclusion trails within biotite porphyroblasts are parallel to the external foliation.

Stations 87-47, 87-80, and 87-82 contain radiating, elongate dark green prisms on the foliation surface. These aggregates consist of dark green chlorite pseudomorphing andalusite (?). This texture has been used in the Anvil District to differentiate unit 1D (which contains this texture) from 3G phyllite and 1C schist

(both of which lack this feature). This area has not been separated out in Figure 2 because it appears to be a fairly isolated occurrence which requires more mapping to ascertain the distribution of this rock type.

A trench dug just north of the Mine Access road and south of the RR claims contains 3D biotite calc-silicate. Until further work is completed this trench has been interpreted as a small lens of unit 3D within the homogeneous 1C schist.

From Figure 2, this middle unit has a structural thickness of 210 meters. Lithologically it is classic Mount Mye formation metamorphosed to amphibolite facies metamorphic grade.

1G (upper unit)

The uppermost unit mapped in the RR claims area is a medium grained, light grey to cream, calcitic marble. This unit is compositionally banded on a centimeter scale in shades of grey based on fine opaque dust content. Silicate bands and pods typically form less than 10% of the unit, giving an overall impression of a very pure calcitic marble. These lenses and bands consist dominantly of quartz and hornblende.

Microscopically the unit consists dominantly of highly twinned, irregular calcite grains (90% or more). Irregular small quartz, plagioclase, and opaque grains are scattered as inclusions within calcite grains and along calcite grain margins. The metamorphic assemblage consists of:

calcite-quartz-$\pm$plagioclase$\pm$hornblende$\pm$muscovite $\pm$phlogopite$\pm$sphene.

Calc-silicates are not disseminated within the carbonate. Staining for K-feldspar indicates it is absent.

The outcrop pattern for this unit (see Figure 2) suggest that it is structurally thickened by isoclinal folding. In Figure 2 the isoclinal fold has been interpreted with westerly vergence. The continuous southwest orientation of the dominant foliation and the vergence sense are consistent with the isoclinal fold being a phase deformation structure. With this interpretation the structural thickness of this unit is only 25 meters.

As with the lowest unit, this lithology correlates most closely with calcitic marble units within the lower Mount Mye formation. It can be distinguished from the structurally lower 1G rocks by its lack of abundant silicate bands and lenses and the presence of K-feldspar.

## STRUCTURE AND METAMORPHISM

All units in the map area contain a pervasive southwest dipping schistosity. Figure 3 shows that field measurements indicate a reasonable clustering of the dominant foliation with an average orientation of 160/18 SW. In sample 87-69, the foliation is an axial planar crenulation cleavage with poorly preserved microlithons forming fold hinges. Sample 87-47 contains inclusion trails in garnet at a high angle to the external foliation. These textures indicate that the dominant foliation is an S2 surface forming during the phase 2 deformation event. Regionally the orientation of this foliation is consistent with the S2 crenulation cleavage present at lower metamorphic grades. In most of the

collected samples, the earlier phase 1 foliation has been completely transposed into parallelism with the dominant phase 2 schistosity.

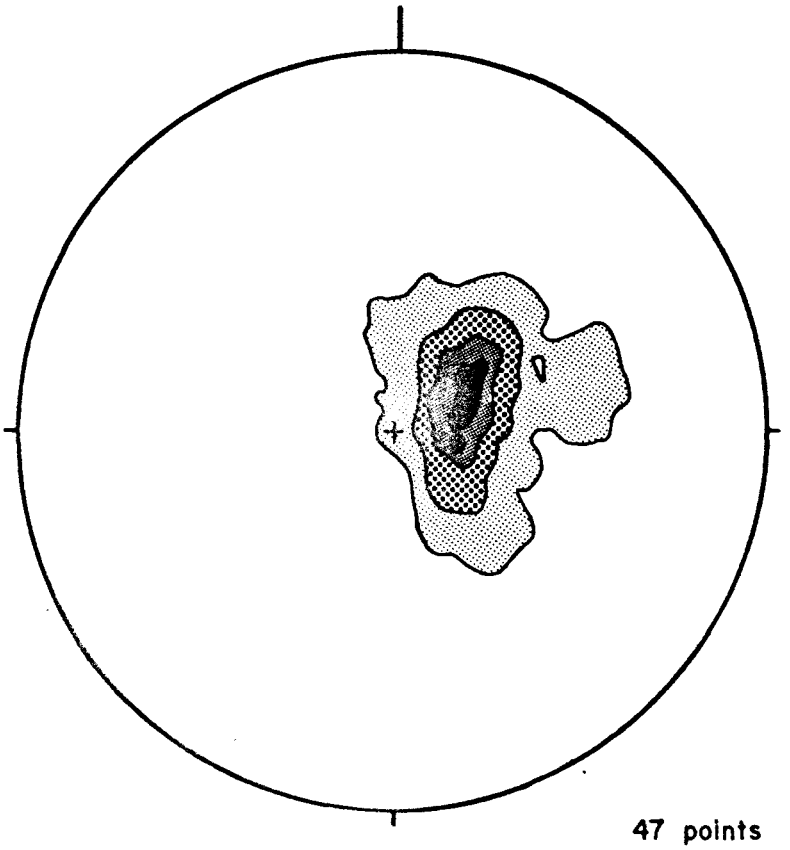
Locally the schists show a faint biotite streaking on the S2 foliation surface. Measurements of this phase 2 lineation are illustrated in Figure 4; they have a consistent shallow plunge with average orientation 180/06. Phase 2 folds therefore have a north-south axis with a very gentle plunge toward the south.

The S2 foliation in the schists is locally crinkled by a fine, post - S2 crenulation cleavage. Five measurements of this crinkle lineation are plotted on an equal area stereonet in Figure 5. The average orientation of this L3 lineation is 312/16. No mesoscopic folds are associated with this lineation in the mapped area.

The mineral textures and inclusion trails in the collected samples indicates that the various metamorphic minerals formed and equilibrated during the phase 2 deformation. Locally relict inclusion trails in garnet may preserve phase 1 deformation textures.

Metamorphic mineral assemblages in the schists and carbonates are indicative of amphibolite facies metamorphism. Co-existing minerals are high variance assemblages and therefore do not permit tightly constrained estimates of pressure - temperature conditions during metamorphism. The ubiquitous presence of andalusite in the schists constrains pressures to less than 4 kilobars (Jennings and Jilson, 1986). This corresponds to a burial depth of less than 13 kilometres. The presence of the assemblage staurolite-quartz-biotite-muscovite-andalusite$\pm$garnet suggests temperatures in the

FIGURE 4. Contoured equal area stereonet of poles to S2 foliation surfaces



47 points

average S2 foliation

160/18 SW

## RR CLAIMS

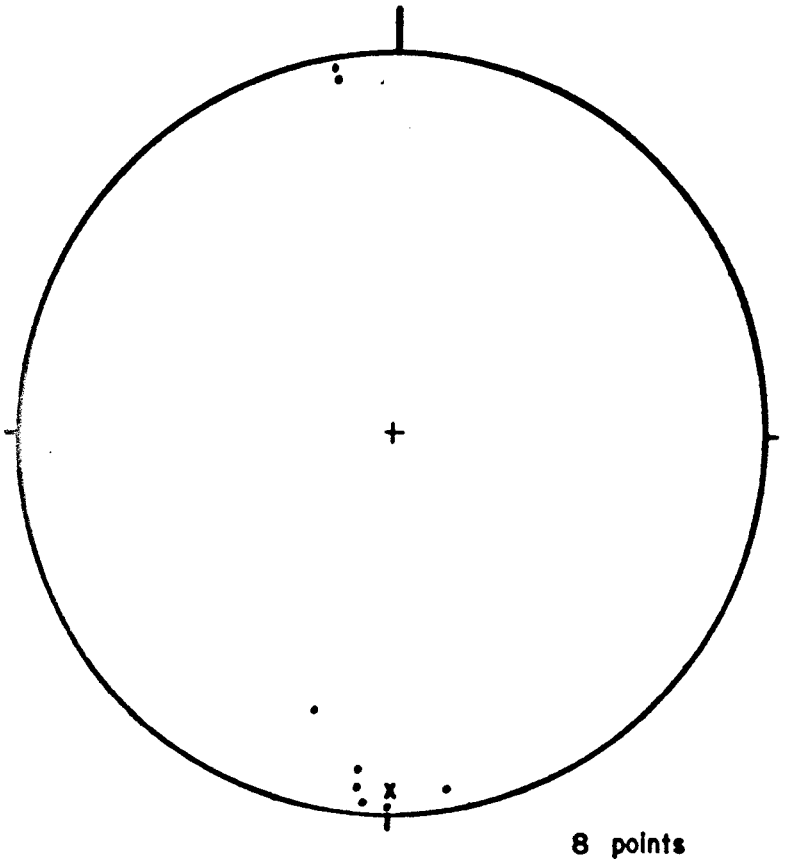
Poles to S2 foliation surfaces

Schmidt net, lower hemisphere projection

Contours at 0%, 10%, 20%, 30% per 1% area

Curragh Resources Inc.

FIGURE 5. Equal area stereonet of L2 lineations - biotite streaking




## RR CLAIMS

L2 Lineation: biotite streaking on S2

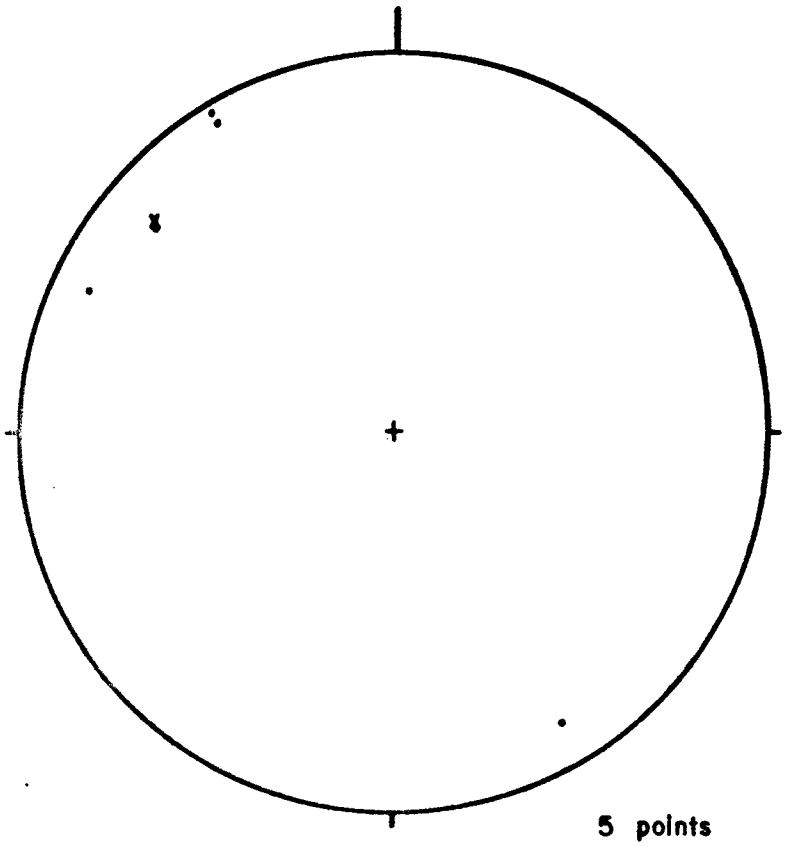
- lineation

x average lineation

180/06

Curragh Resources Inc.

FIGURE 6. Equal area stereonet of L3 lineations - crinkle lineation




## RR CLAIMS

L3 Lineation: crinkle on S2

- • lineation
- x average lineation

312/16

Curragh Resources Inc.

092101

range 500 - 550 degrees Celsius.

## SUMMARY

The map area contains a homoclinal southwest-dipping section of Mount Mye formation with a total structural thickness of 520 meters. The lowest portion of the Mt. Mye formation is intruded by the late Cretaceous Mt. Mye phase of the Anvil plutonic suite. Deformation and metamorphic textures of all units were formed during the phase 2 deformation event.

The calcitic marbles and calc-silicates in the area indicate that the RR claims are underlain by the lower part of the Mount Mye formation. If a structurally upright, homoclinal sequence is assumed, the uppermost Mt. Mye formation would be located west of the mapped area. The RR claims do not contain the appropriate stratigraphic sequence for Anvil District massive sulphide deposits.

## RECOMMENDATIONS FOR FURTHER WORK

No further work is recommended with regard to exploration for massive sulphide deposits on the RR claims. The stratigraphic and structural interpretation presented in this report indicates that the lower part of the Mount Mye formation contains a thick section of interlayered calcitic marble, argillaceous calcitic marble, noncalcareous schist, and biotite calc-silicate. This interpretation is based on minimal outcrop. It is recommended that shallow trenching be completed in the area of minimal outcrop to

ascertain whether the inferred structural thicknesses for the described units are realistic. This information would be useful in regional correlations through the Anvil District.

Respectfully submitted,

L.C. Pigage, Ph.D., FGAC

092191

## SELECTED REFERENCES

Jennings, D.S. and G.A. Jilson, 1986. Geology and Sulphide deposits of Anvil Range, Yukon. IN J. Morin (ed.), Mineral Deposits of Northern Cordillera. CIM Special Publication 37, 319-361.

Pigage, L.C. and R.G. Anderson, 1985. The Anvil plutonic suite, Faro, Yukon Territory. Canadian Journal of Earth Sciences, 22, 1204-1216.

## STATEMENT OF QUALIFICATIONS

I, Lee C. Pigage, of Whitehorse, Yukon, do hereby certify that:

1.) I am a graduate of University of Wyoming with a B.Sc. degree in Geology in 1970;

2.) I am a graduate of the University of British Columbia with M.Sc. and Ph.D. degrees in Geological Sciences in 1973 and 1978, respectively;

I have been engaged in mineral exploration and development as a professional geologist continuously since 1979;

4.) I am a Fellow of the Geological Association of Canada;

5.) I am the author of this report describing field work completed by myself in 1987.

Lee C. Pigage

Lee C. Pigage, F.G.A.C.

Senior Geologist,
Curragh Resources Inc.

092101

UNIT: 1G + 1C + 3D

Rock Type: 1G

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-52B
DDH: _____
UNIT: _____
ROCK NAME: 1G

DESCRIBED BY: LCP
DEPTH: _____
DATE: Dec 24/1987

HAND SAMPLE: Argillaceous dark grey and greenish grey marble. Marble contains irregular bands and lenses rich in green silicates. Exposed surfaces weather to a dirty brown.

PURPOSE: Staining for K-feldspar is positive.

Chlorite has deep blue anomalous interference colours.

Biotite has medium brown to pale tan pleochroism.

| | PELITE / CARBONATE EST. | POINT CT. |
|---|---|---|
| CALCITE | - / 55% | |
| QUARTZ | 63% / 15% | |
| PLAGIOCLASE | 15% / 10% | |
| K-FELDSPAR | 10% / - | |
| DIOPSIDE | - / 10% | |
| EPIDOTE / CLINOZOISITE | - / 10% | |
| BIOTITE | TRACE / - | |
| CHLORITE | 10% / - | |
| SPHENE | TRACE / TRACE | |
| OPAQUES | 2% / TRACE | |

COMMENTS:

Pelitic intervals are very fine-grained. Foliation is strongly delineated—intervals have a mylonitic appearance. Biotite is extensively retrograded to chlorite. Staining indicates K-feldspar is present. Metamorphic assemblage is:

biotite (→ chlorite) - quartz - plagioclase - sphene ± K-feldspar

Carbonate intervals are coarser grained. They consist of interlocking calcite grains with aggregates of silicates. Both diopside and epidote/clinozoisite were identified—it is difficult to differentiate between these minerals. Calc-silicates are anhedral and interstitial between calcite grains.

Assemblage is:

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calcite - quartz - plagioclase - diopside - clinozoisite/epidote - sphene

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-87A
DDH:
UNIT:
ROCK NAME: 1G

DESCRIBED BY: LCP
DEPTH:
DATE: Dec 24 / 1987

HAND SAMPLE: Dark brownish grey, argillaceous, calcitic marble. Contains abundant medium green patches of calc-silicates disseminated throughout the calcareous bands. Rock weathers with a white calcareous druse.

PURPOSE: Staining for K-feldspar indicates it is present.

Plagioclase Albite twins
260-239-217 21° $An_{39}$

Chlorite has deep blue anomalous interference colours

Hornblende pleochroism is medium green

| | EST. | POINT CT. |
|---|---|---|
| QUARTZ | 35% | |
| CALCITE | 25% | |
| PLAGIOCLASE | 25% | |
| K-FELDSPAR | 8% | |
| SCAPOLITE | TRACE | |
| EPIDOTE / CLINOZOISITE | 20% | |
| HORNBLENDE | TRACE | |
| CHLORITE | TRACE | |
| SPHENE | 4% | |
| OPAQUES | 3% | |

COMMENTS:

Contains area of quartz vein with coarse quartz, clinozoisite-epidote, K-feldspar. Clinozoisite locally has green hornblende inclusions (possibly diopside?). K-feldspar is anhedral, associated with quartz and plagioclase.

Sphene occurs as rounded to subhedral grains.

Chlorite totally replaces biotite (?) in more pelitic interval.

Intergrown subhedral to anhedral grains of clinozoisite/epidote, quartz, plagioclase, calcite. Typically clinozoisite is skeletal around quartz and plagioclase. Scapolite occurs locally.

Metamorphic assemblage:
calcite-quartz-plagioclase-clinozoisite/epidote-sphene ± scapolite ± K-feldspar

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# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-92A
DDH: _____
UNIT: _____
ROCK NAME: 1G

DESCRIBED BY: LCP
DEPTH: _____
DATE: Dec 23/1987

**HAND SAMPLE:** Medium-grained, grey, calcitic marble. Contains bands and lenses of pale green to greenish grey calc-silicates. Also contains bands of dark brown, biotite-rich pelite.

**PURPOSE:** Staining for K-feldspar shows minor scattered K-feldspar grains in the marble intervals.

Hornblende has medium green pleochroism

Biotite has tan to brown pleochroism

| | EST. | POINT CT. |
|---|---|---|
| CALCITE | 50 % | |
| EPIDOTE / CLINOZOISITE | TRACE | |
| DIOPSIDE | 20 % | |
| HORNBLENDE | 5 % | |
| QUARTZ | 10 % | |
| PLAGIOCLASE | 10 % | |
| K-FELDSPAR | TRACE | |
| BIOTITE | TRACE | |
| CHLORITE | TRACE | |
| SPHENE | 3 % | |
| OPAQUES | 2 % | |

**COMMENTS:**

Carbonate forms most of thin section. It consists of scattered silicate aggregates within an interlocking, anhedral calcite matrix. Silicates are diopside with scattered relict hornblende. Plagioclase and quartz occur as scattered grains in and around hornblende and diopside. Plagioclase has a light sericite dusting.

Based on staining results, K-feldspar occurs only rarely.

Pelitic bands consist of biotite-hornblende-diopside-quartz-plagioclase-sphene. Chlorite very locally replaces biotite.

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# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-96
DDH: _____
UNIT: _____
ROCK NAME: 1G

DEPTH: _____
DESCRIBED BY: LCP
DATE: DEC 22/1987

**HAND SAMPLE:** Medium crystalline, grey, calcitic marble with abundant boudins and lenses of pale green calc-silicates. Silicate lenses are elongate in foliation; they are up to 3 cm thick and locally extend along the foliation for 5 cm. Rock weathers to dark rust-brown with calcite layers weathering very recessively.

**PURPOSE:** Staining indicates K-feldspar occurs in minor amounts in silicate bands.

Hornblende has pale green pleochroism

Biotite pleochroism is tan to medium brown

Chlorite has anomalous dark blue interference colours

| | PELITE EST. | / CARBONATE | POINT CT. |
|---|---|---|---|
| CALCITE | - | / 60% | |
| EPIDOTE / CLINOZOISITE | TRACE | / 15% | |
| DIOPSIDE | - | / 3% | |
| HORNBLENDE | - | / 2% | |
| QUARTZ | 10% | / 10% | |
| PLAGIOCLASE | 20% | / 8% | |
| K-FELDSPAR | - | / TRACE | |
| BIOTITE | 50% | / - | |
| CHLORITE | 10% | / - | |
| SERICITE | 10% | / - | |
| TOURMALINE | TRACE | / - | |
| SPHENE | - | / 2% | |
| OPAQUES | TRACE | / TRACE | |

**COMMENTS:**

Pelite layer at one end of thin section has the assemblage:
biotite - quartz - plagioclase - opaques - tourmaline
Plagioclase has a heavy sericite dusting. Biotite is locally altered to chlorite.

Adjacent to pelite have the "vein" assemblage:
quartz - plagioclase - hornblende - diopside - epidote/clinozoisite - opaques - sphene
Assemblage is coarse-grained. Hornblende is partly rimmed by diopside.

Carbonate assemblage consists of:
calcite - quartz - plagioclase - clinozoisite/epidote - sphene - opaques - diopside ± K-feldspar.

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RR CLAIMS
87-96 continued

LCP
DEC 22/1987

1G

K-feldspar occurs in minor amounts in siliceous bands within carbonate.
Difficult to distinguish between clinozoisite/epidote and diopside.
Silicates occur as aggregates in a calcite matrix.

UNIT: 1G + 1C + 3D

Rock Type: 1C

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-62
DDH: _____ DEPTH: _____
UNIT: _____
ROCK NAME: IC

DESCRIBED BY: LCP
DATE: DEC 24/1987

HAND SAMPLE: Medium-grained, dark brown biotite schist. Dominant foliation is slightly crinkled. Staining for K-feldspar indicates none is present. Rock weathers to a light tan.

PURPOSE:

Biotite has pale brown to medium brown pleochroism

Tourmaline yellow-brown with blue-green core

Plagioclase albite twins
149 - 156 - 166 ^ 8°
165 - 158 - 149 ^ 8° $AN_{27}$
relief < quartz

| | EST. | POINT CT. |
|---|---|---|
| BIOTITE | 30% | |
| SERICITE | 25% | |
| QUARTZ | 25% | |
| PLAGIOCLASE | 10% | |
| STAUROLITE | TRACE | |
| TOURMALINE | 5% | |
| OPAQUES | 5% | |
| ZIRCON | TRACE | |
| | | |
| | | |

Quartz grains 0.1 - 0.2 mm across

COMMENTS:

Biotite occurs in the matrix as coarse aggregates of grains. Incipient alteration of biotite to chlorite is accompanied by long streaks of opaque dust along 001 cleavage. Zircon occurs in trace amounts as inclusions in biotite - it is recognized by radiation damage halos.

Matrix contains abundant tourmaline; more than is typical for a pelite.

Plagioclase is recognized by Albite twinning. Locally it has a sericite dusting.

Relict staurolite is present as cores in fine sericite alteration. No quartz inclusions; but it does have tourmaline inclusions.

Abundant sericitic muscovite occurs as large and small pseudomorphs of former porphyroblasts. Pseudomorphs have small biotite inclusions. Identity of former mineral unknown. The abundance of sericite suggests it might have been andalusite.

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RR CLAIMS
87-62 continued

LCP
DEC 24/1987

No muscovite occurs in the matrix.
Biotite and quartz elongation poorly defines the dominant foliation.
Quartz grains are interlocking with incipient suture margins. Undulose extinction and subgrain development are common.

UNIT: 1G + 1C + 3D

Rock Type: 3D

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-52A
DDH:
UNIT:
ROCK NAME: 3D

DESCRIBED BY: LCP
DEPTH:
DATE: DEC 24/1987

HAND SAMPLE: Dark purplish brown and pale green banded calc-silicate. Margins of the calc-silicate bands contain dark green hornblende. Purplish brown bands are biotite-rich. Banding is on a scale of 1-3 cm.

PURPOSE: Staining for K-feldspar is positive. It occurs mainly in the pelite.

Biotite pleochroism is pale tan to reddish brown

Hornblende has medium green pleochroism.

| | PELITE / CALC-SILICATE EST. | POINT CT. |
|---|---|---|
| BIOTITE | 35% / - | |
| MUSCOVITE | TRACE / - | |
| CHLORITE | TRACE / - | |
| QUARTZ | 45% / 15% | |
| PLAGIOCLASE | 20% / 11% | |
| K-FELDSPAR | 10% / - | |
| TOURMALINE | TRACE / - | |
| OPAQUES | TRACE / 2% | |
| EPIDOTE/CLINOZOISITE | - / 60% | |
| DIOPSIDE | - / 5% | |
| HORNBLENDE | - / 5% | |
| SPHENE | - / 2% | |

COMMENTS:

Pelite consists of biotite scattered in a fine-grained matrix of quartz and plagioclase. K-feldspar is also present locally. Biotite is retrograded to chlorite in places. Dominant foliation is delineated by biotite and muscovite. Locally can see slight displacement along post-foliation extensional cleavage.

Hornblende forms rim to calc-silicate band. Calc-silicate band has large elongate epidote/clinozoisite grains elongate in dominant foliation.

All parts of thin section contain well developed, late, cross-cutting fractures.

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# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-87B
DDH: _____ DEPTH: _____ DESCRIBED BY: LCP
UNIT: _____ DATE: Dec 24/1987
ROCK NAME: 3D

HAND SAMPLE: Interbanded dark purple-brown biotite schist and pale green calc-silicate. Calc-silicate bands contain lenses of dark green hornblende. Banding is on a scale of 1-3cm.

PURPOSE: Staining for K-feldspar indicates it is present.

Chlorite has pale green pleochroism and anomalous dark blue interference colours.

Biotite pleochroism is pale tan to reddish brown.

Plagioclase Albite twins
217-183-144 36° $An_{63}$

Hornblende has green pleochroism
Average grain size 0.1mm

| | EST. | POINT CT. |
|---|---|---|
| QUARTZ | 25% | |
| BIOTITE | 13% | |
| CHLORITE | 12% | |
| MUSCOVITE | TRACE | |
| PLAGIOCLASE | 15% | |
| K-FELDSPAR | TRACE | |
| EPIDOTE/CLINOZOISITE | 25% | |
| HORNBLENDE | TRACE | |
| CALCITE | 5% | |
| SPHENE | 3% | |
| OPAQUES | 2% | |

COMMENTS:

Dominant calc-silicate assemblage is:
epidote/clinozoisite - plagioclase - quartz - sphene ± calcite

Main pelite assemblage is:
biotite - plagioclase - quartz - sphene - epidote/clinozoisite

Biotite is extensively retrograded to chlorite. Calcite and coarse-grained opaques occur dominantly as fracture fillings. K-feldspar could not be differentiated in the thin section. Minor hornblende occurs in the transition zone between the calc-silicate and the pelite. All grains are irregular and anhedral.

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# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-89
DDH: _____ DEPTH: _____ DESCRIBED BY: LCP
UNIT: _____ DATE: DEC 24/1987
ROCK NAME: 3D

HAND SAMPLE: Dark green, fine-grained calc-silicate with large, irregular, dark red garnet porphyroblasts.

Staining for K-feldspar indicates none is present.

PURPOSE: Located immediately adjacent to Anvil Batholith.

Garnet is colourless in plane light.

Colourless is very faintly pleochroic in light green

Plagioclase Albite twinning
154-124-95 30° $An_{53}$
177-154-139 19° $An_{38}$

| | EST. | POINT CT. |
|---|---|---|
| QUARTZ | 40% | |
| PLAGIOCLASE | 20% | |
| EPIDOTE/CLINOZOISITE | 35% | |
| GARNET | 5% | |
| CALCITE | TRACE | |
| SPHENE | TRACE | |
| | | |
| | | |
| | | |
| | | |

COMMENTS:

One-third of slide consists of coarse-grained quartz vein with minor amounts of "included" minerals. Quartz shows strong undulatory extinction and subgrain development. Adjacent to vein on one side is large epidote/clinozoisite aggregate which is much fractured with minor calcite locally along fractures. Minor quartz inclusions are in the epidote/clinozoisite.

Rest of slide consists of irregular, fine-grained matrix of epidote/clinozoisite, quartz, and plagioclase with lesser amounts of sphene and clear garnet. All grains are anhedral. Garnet occurs as clusters of small grains dominantly within epidote/clinozoisite.

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-92B
DDH: _____ DEPTH: _____
UNIT: _____
ROCK NAME: 3D

DESCRIBED BY: LCP
DATE: Dec 22/1987

**HAND SAMPLE:** Dark purplish brown biotite schist containing thin interbands of light green calc-silicate. Calc-silicate bands are 0.5 cm thick. Pelite contains minor scattered, coarse, pale pink garnet.

**PURPOSE:** Staining for K-feldspar indicates minor thin bands in pelite contain K-feldspar.

Biotite pleochroism is pale tan to reddish brown

Hornblende pleochroism is medium green

Chlorite has anomalous deep brown and deep blue interference colours

| | EST. | POINT CT. |
|---|---|---|
| BIOTITE | 15% | |
| QUARTZ | 40% | |
| PLAGIOCLASE | 25% | |
| K-FELDSPAR | 10% | |
| CHLORITE | TRACE | |
| MUSCOVITE | TRACE | |
| HORNBLENDE | 3% | |
| EPIDOTE/CLINOZOISITE | 5% | |
| OPAQUES | 2% | |
| SPHENE | TRACE | |
| TOURMALINE | TRACE | |
| CALCITE | TRACE | |

**COMMENTS:**

Pelite consists of medium to coarse grained, reddish brown biotite in a matrix of fine-grained quartz-plagioclase-opaques ± K-feldspar. Biotite has irregular margins. Larger porphyroblasts are not aligned parallel foliation; foliation abuts against these grains and grains abut against foliation. Quartz also occurs as coarse-grained veinlets or "sweats". Tourmaline occurs in minor amounts. Zircon forms small inclusions in biotite. Staining shows some bands are rich in K-feldspar.

Calc-silicate bands have hornblende on outer margins. Towards centre of band major mineral is irregular, coarse epidote/clinozoisite. Sphene occurs as subhedral to anhedral grains. Only very minor calcite is present.

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# THIN SECTION LOG

PROJECT: RR Claims
STATION: 87-92C
DDH: _____
UNIT: _____
ROCK NAME: 3D

DESCRIBED BY: LCP
DEPTH: _____
DATE: Dec 22/1987

**HAND SAMPLE:** Light greenish grey, calcareous calc-silicate. Contains noticeable disseminated pyrite. Weathers to a dirty dull grey. Thinly banded to thickly laminated in shades of green and grey.

**PURPOSE:** Staining for K-feldspar indicates some thin laminae are very K-feldspar rich.

Epidote/clinozoisite is pale green

Chlorite is pale green and has anomalous deep blue interference colours.

Hornblende has medium green pleochroism.

Grain size ranges up to 0.4 mm.

| | EST. | POINT CT. |
|---|---|---|
| CALCITE | 15% | |
| QUARTZ | 20% | |
| PLAGIOCLASE | 20% | |
| K-FELDSPAR | 10% | |
| HORNBLENDE | TRACE | |
| CHLORITE | TRACE | |
| EPIDOTE/CLINOZOISITE | 30% | |
| OPAQUES | 2% | |
| SPHENE | 3% | |
| APATITE | TRACE | |

**COMMENTS:**

Anhedral aggregates of epidote/clinozoisite in a coarse- to fine-grained matrix of quartz-plagioclase ± K-feldspar. Staining indicates some fine-grained, thin laminae have abundant K-feldspar.

Calcite is not the dominant mineral – it contains deformation twins.

Sphene occurs as euhedral to anhedral grains. It forms inclusions in all other minerals, especially epidote/clinozoisite.

Very minor hornblende is intergrown with epidote/clinozoisite.

UNIT: 1C

Rock Type: 1D

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-47
DDH:
UNIT:
ROCK NAME: 1D

DESCRIBED BY: LCP
DEPTH:
DATE: DEC 23/1987

**HAND SAMPLE:** Fine-grained, silvery grey, biotite phyllite to schist. Biotite visible on cut surface and foliation surface as disseminated porphyroblasts. Dominant foliation surface has randomly oriented sheaves of elongate dark mineral. Rock weathers to a light orange-brown.

**PURPOSE:** Staining for K-feldspar indicates none is present.

Biotite has medium brown to pale brown pleochroism
Staurolite is pale yellow in plain light
Chlorite has anomalous deep blue interference colours

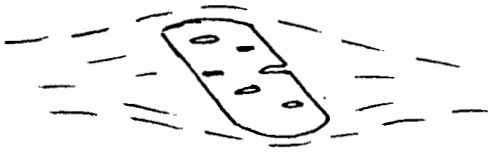
Garnet 0.9mm across
Biotite up to 1.8mm long
Quartz up to 0.2mm long

| | EST. | POINT CT. |
|---|---|---|
| BIOTITE | 30% | |
| MUSCOVITE | 25% | |
| CHLORITE | TRACE | |
| QUARTZ | 33% | |
| GARNET | 3% | |
| STAUROLITE | 5% | |
| ANDALUSITE | 2% | |
| OPAQUES | 2% | |
| ZIRCON | TRACE | |
| | | |

**COMMENTS:**

Thin section has 1 foliation. It is delineated by muscovite and quartz with lesser opaques and biotite.

Biotite occurs as slightly larger porphyroblasts in a micaceous matrix. When not aligned parallel to the foliation, biotite grains are truncated at ends of grains. Quartz and opaque inclusion trails are parallel foliation. Zircon occurs as inclusions in trace amounts.



biotite porphyroblast

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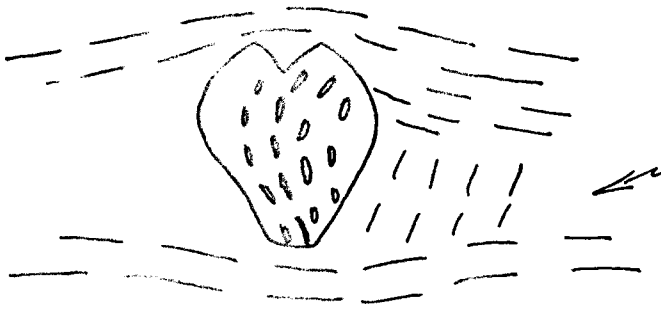
RR CLAIMS
87-47 continued

LCP
DEC 23/1987

1D

Garnet porphyroblasts are euhedral. Inclusion trails of quartz and opaques are slightly curved. In most cases they are subparallel external foliation. In one instance they are at a high angle to the external foliation. This implies inclusion trails define an earlier S1 foliation:




Staurolite has very irregular margins. Typically it has abundant quartz inclusions giving it a skeletal appearance. Inclusion trails are parallel to the external foliation.

Andalusite occurs as irregular grains growing preferentially along compositional banding. It engulfs matrix minerals as abundant inclusions. Biotite and muscovite are notably depleted or absent in andalusite-rich areas. All inclusion trails are parallel to the external foliation. Locally it is incipiently altered to sericite dust.

Metamorphic mineral assemblage:

biotite - muscovite - quartz - garnet - staurolite - andalusite.

Garnet is the only mineral preserving traces of an earlier deformation foliation.

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UNIT: 1C

Rock Type: 1C

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-64
DDH:
UNIT:
ROCK NAME: IC

DESCRIBED BY: LCP
DEPTH:
DATE: Dec 23/1987

HAND SAMPLE: Medium-grained, biotite-muscovite schist. Sample is silvery grey to brownish-grey; exposed surfaces weather to a rusty tan. Biotite porphyroblasts are visible on cut surface. Staining for K-feldspar indicates none is present.

PURPOSE:

Staurolite is pale yellow in plane light

Biotite has pale tan to medium brown pleochroism

| | EST. | POINT CT. |
|---|---|---|
| BIOTITE | 25 % | |
| MUSCOVITE | 15 % | |
| QUARTZ | 30 % | |
| PLAGIOCLASE | 10 % | |
| STAUROLITE | 18 % | |
| OPAQUES | 2 % | |
| ZIRCON | TRACE | |
| | | |
| | | |
| | | |

COMMENTS:

Micas and elongate quartz define dominant foliation. Locally this foliation is slightly crenulated with micas being along axial planes of the crenulation cleavage.

Biotite also forms porphyroblasts not parallel foliation. Ends of grains are truncated by foliation which slightly wraps around porphyroblasts. Zircon occurs in trace amounts as inclusions in biotite.

Staurolite occurs as euhedral porphyroblasts. Quartz and opaques inclusion trails are parallel external foliation. Locally the inclusion trails are slightly crenulated.

Plagioclase forms anhedral grains elongate parallel external foliation. Contains abundant sericite dust. Plagioclase appears to be associated with staurolite.

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# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-69
DDH: _____ DEPTH: _____ DESCRIBED BY: LCP
UNIT: _____ DATE: DEC 23/1987
ROCK NAME: IC

HAND SAMPLE: Medium coarse-grained, silvery brown, biotik-muscovik schist. Contains one dominant foliation with an incipiently developed crenulation cleavage. Foliation surfaces weather to a silvery rust tan.

PURPOSE: Staining for K-feldspar indicates none is present.

| | EST. | POINT CT. |
|---|---|---|
| BIOTITE | 25% | |
| MUSCOVITE | 10% | |
| QUARTZ | 25% | |
| PLAGIOCLASE | 13% | |
| STAUROLITE | 25% | |
| TOURMALINE | TRACE | |
| OPAQUES | 2% | |
| ZIRCON | TRACE | |
| | | |
| | | |

COMMENTS:

Micas define dominant foliation. Locally this foliation is axial planar to relict fold hinges — making this a highly folded and flattened crenulation cleavage.

Staurolite forms subhedral to euhedral porphyroblasts. Inclusion trails of quartz and opaques are generally parallel to the external foliation. Locally they are slightly crenulated.

Very elongate plagioclase grains are associated with staurolite-rich areas. Grains include muscovite and opaque dust. Inclusions are aligned parallel to the external foliation.

092101

RR CLAIMS
87-69 continued

LCP
DEC 23/1987

1C

Biotite locally forms porphyroblasts oriented across the dominant foliation. Ends of these grains are terminated by the foliation. Inclusion trails in the biotite porphyroblasts are parallel to the external foliation.

UNIT: 1G

Rock Type: 1G

092101

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-74A
DDH: _____ DEPTH: _____ DESCRIBED BY: LCP
UNIT: _____ DATE: DEC 23/1987
ROCK NAME: 1G

**HAND SAMPLE:** Medium-grained, calcitic marble containing a 1cm silicate band parallel to the dominant foliation. Silicate band consists largely of dark green hornblende.

**PURPOSE:** Staining for K-feldspar indicates none is present.

Hornblende pleochroism is pale green to yellow-green

Biotite pleochroism is brown with faint green tint

Chlorite has pale olive green interference colours.

| | MARBLE EST. | SILICATE BAND | POINT CT. |
|---|---|---|---|
| CALCITE | 98% | 3% | |
| HORNBLENDE | – | 65% | |
| BIOTITE | – | TRACE | |
| CHLORITE | – | 2% | |
| SERICITE | – | 5% | |
| APATITE | – | 3% | |
| QUARTZ | 2% | – | |
| PLAGIOCLASE | – | 15% | |
| SPHENE | – | 5% | |
| OPAQUES | TRACE | 2% | |

**COMMENTS:**

Marble consists of highly twinned, interlocking, irregular calcite grains up to 1mm across. Grains typically meet with 120° triple point junctions. Scattered both within grains and along grain margins are subequant, irregular quartz grains up to 0.2mm across. Larger quartz grains typically contain subdomains and have strong undulatory extinction.

Silicate band consists of coarse, green hornblende. Bands and lenses of highly sericitized plagioclase occur with the hornblende. Sphene grains are largely restricted to plagioclase. Apatite occurs as subhedral inclusions in hornblende and plagioclase.

Locally hornblende is altered to chlorite, especially along late fractures which visibly displace the hornblende-rich silicate band.

RR CLAIMS
87-74A continued

LCP
DEC 23/1987

1G

Biotite occurs as small isolated flakes in calcite matrix on the margins of the silicate band. Quartz was not noted in the silicate band.

Observed metamorphic assemblages are:

hornblende - plagioclase - sphene - calcite
calcite - quartz
calcite - biotite ± quartz

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-74B
DDH: _____ DEPTH: _____
UNIT: _____
ROCK NAME: 1G

DESCRIBED BY: LCP
DATE: DEC 22/1987

HAND SAMPLE: Cream to white, medium-grained, calcitic marble.

Staining for K-feldspar indicates none is present.

PURPOSE:

Plagioclase Albite twins
50-37-30 10°
70-61-48 11° $AN_{28}$
258-277-285 -

Calcite grains 1mm long
Quartz and plagioclase grains 0.1 mm across

| | EST. | POINT CT. |
|---|---|---|
| CALCITE | 95% | |
| QUARTZ | 3% | |
| PLAGIOCLASE | 2% | |
| OPAQUES | TRACE | |
| MUSCOVITE | TRACE | |
| | | |
| | | |
| | | |
| | | |
| | | |

COMMENTS:

Interlocking calcite grains with 120° triple point junctions. Calcite is highly twinned (deformation twinning). Grains are elongate in direction of dominant foliation.

Contains scattered, subequant, isolated grains of quartz, plagioclase, and opaques. Plagioclase recognized only by the presence of Albite twinning. Silicates occur both as inclusions and along calcite grain boundaries. Only trace amounts of muscovite noted.

Metamorphic assemblage is:

calcite - quartz ± plagioclase ± muscovite

092101

# THIN SECTION LOG

PROJECT: RR CLAIMS
STATION: 87-77
DDH: _____
UNIT: _____
ROCK NAME: 1G

DESCRIBED BY: LCP
DEPTH: _____
DATE: Dec 22/1987

HAND SAMPLE: Cream-white and light grey streaked calcitic marble. Streaking on a scale of 1-2mm in thickness defines the dominant foliation.

Staining for K-feldspar indicates none is present.

PURPOSE:

| | EST. | POINT CT. |
|---|---|---|
| CALCITE | 90% | |
| QUARTZ | 9% | |
| MUSCOVITE | 1% | |
| PHLOGOPITE | TRACE | |
| OPAQUES | TRACE | |
| | | |
| | | |
| | | |
| | | |
| | | |

Phlogopite has very pale tan pleochroism.

Quartz grains 0.1-0.2mm across

Calcite grains 0.8mm across

COMMENTS:

Medium-grained, interlocking calcite with 120° triple point junctions between grains. Grains are elongate in foliation and typically have numerous twins.

Thin streaks parallel foliation consist dominantly of quartz with lesser muscovite, opaques, and phlogopite. Quartz grains have slight undulatory extinction. Muscovite has interstitial shredded to sericitic appearance. Opaques locally weather with a brown stain.

Metamorphic assemblage:

Calcite - quartz ± muscovite ± phlogopite

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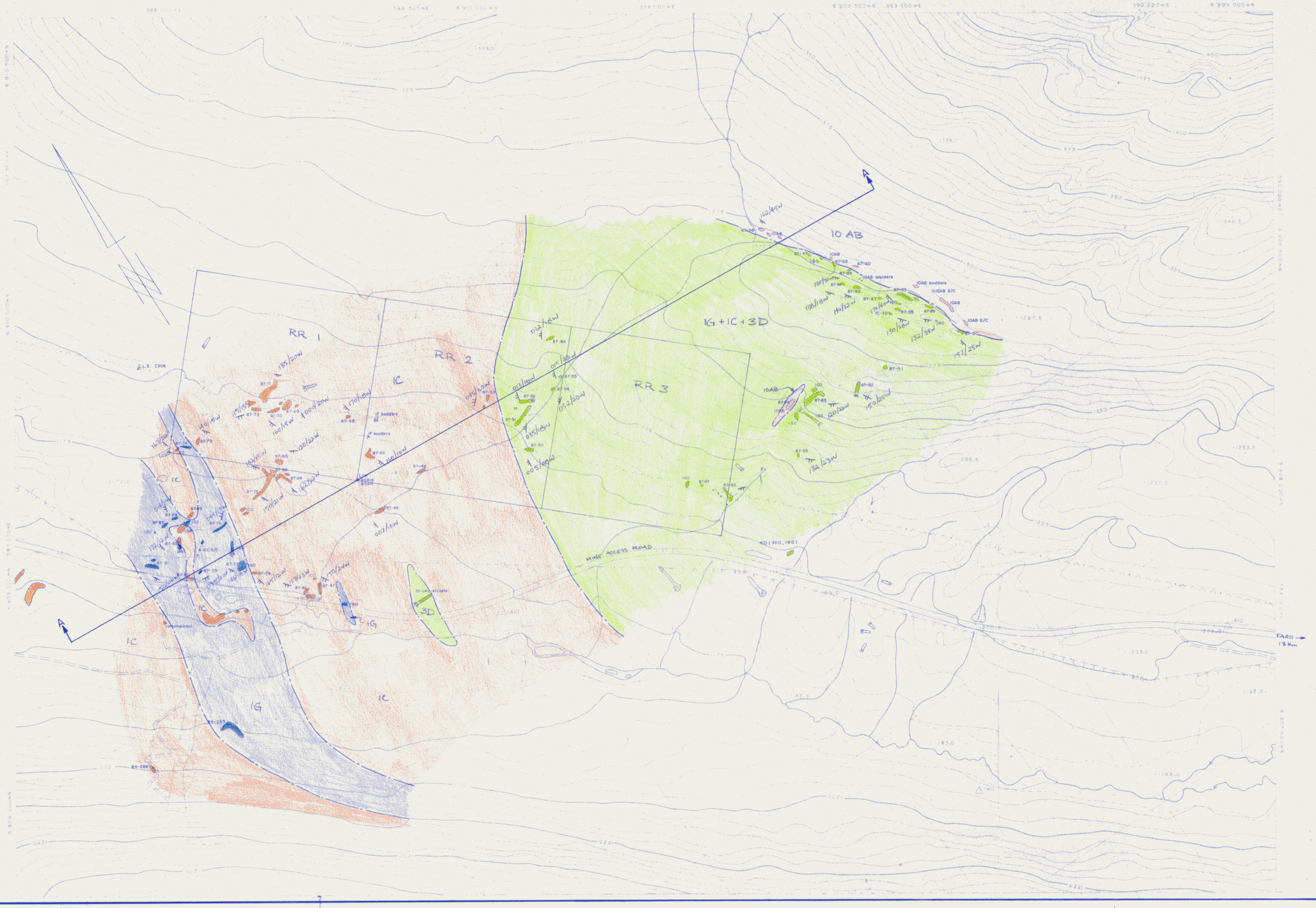
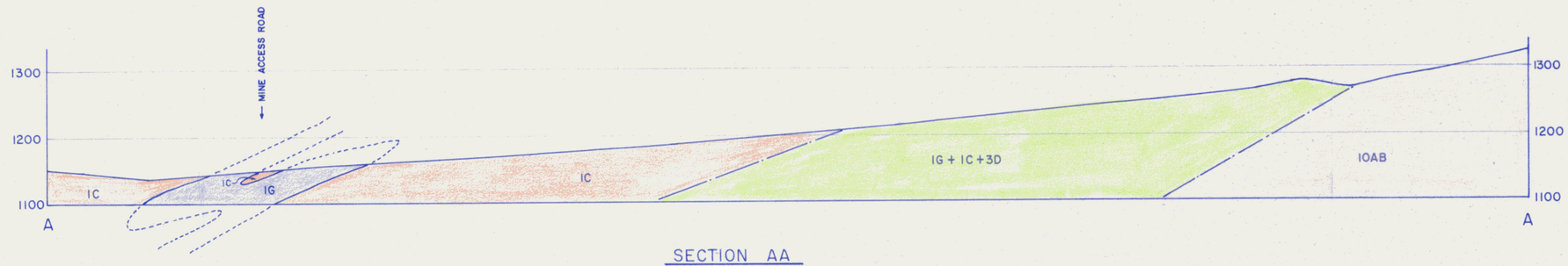
SHEET Nº E-6-4 E ½
GEOLOGY MAP

ADJOINS E-6-6E ½

SHEET Nº E-6-4 E ½
GEOLOGY MAP




SECTION AA

092101

Curragh Resources Inc.

# 'RR' CLAIMS GEOLOGY

SCALE 1:5000

MAP UNITS

- 10AB ANVIL PLUTONIC SUITE
- IC NON-CALCAREOUS BIOTITE SCHIST
- IG CALCITIC MARBLE
- 3D BIOTITE CALC-SILICATE

LEGEND

- S2 FOLIATION
- GEOLOGICAL CONTACT
- OUTCROPS
- TRENCHES
- CLAIM BOUNDARIES

L. C. Pigage

L. PIGAGE (1987)

092101

Department of Indian Affairs and Northern Development

YUKON QUARTZ MINING ACT

# FORM "C" – APPLICATION FOR A CERTIFICATE OF WORK

(This form required in duplicate with sketch showing location of work.)

RECEIVED
DEC 2 1987
MINING RECORDERS OFFICE WHITEHORSE, Y.T.

OFFICE DATE STAMP

(Name) Gregg Jilson  Occupation Geologist

(Postal Address) 117 Industrial Rd, Whitehorse, YT

## MAKE OATH AND SAY, THAT :-

1. I am the owner, or agent of the owner, of the mineral claim(s) to which reference is made herein.

2. I have done, or caused to be done, work on the following mineral claim(s):
(Here list claims on which work was actually done by number and name)

| | |
|---|---|
| RR 1 - 3 Incl. | YA86414 - 16 incl. |
| MIAMI 1 | Y79354 |
| MIAMI 3 | Y79356 |
| MIAMI 12, 13 | Y79365, Y79360 |
| ROC 4, 6 | Y78031, Y78033 |

situated at Faro Mine  Claim Sheet No. 105-K-6

in the Whitehorse Mining District, to the value of at least $1500.00

dollars, since the first day of July 19 87.

to represent the following mineral claims under the authority of Grouping Certificate No. 4204Q
(Here list claims to be renewed by number and name in numerical order)

| | | |
|---|---|---|
| RR1 | YA86414 | 5 Years |
| RR2 | YA86415 | 5 Years |
| RR3 | YA86416 | 5 Years |
| | | Total 15 Years |

3. The following is a detailed statement of such work: (Set out full particulars of the work done in the twelve months in which such work is required to be done, as shown by Section 53.)

Geological Mapping

| | | | |
|---|---|---|---|
| field work | | | |
| Geologist | 3 days | 211/day | $633.00 |
| truck | 3 days | 43.55/day | 130.65 |
| Room and board | 3 days | 50.00/day | 150.00 |
| office work | | | |
| Thin section study | 3 days | 211/day | 633.00 |
| Thin section prep. | -- | -- | 147.00 |
| Report prep. | 1 day | 211/day | 211.00 |
| Drafting | 6.5 hrs. | 17/hr. | 110.50 |
| | | | $2015.15 |

Sworn before me at Whitehorse

this 29 day of December 1987

J.P. Bellhard

A NOTARY PUBLIC IN AND FOR THE PROVINCE OF YUKON

Applicant.