Geoscience Australia

Geochronology Laboratory Sample Submission Form

This form must be fully completed before any work can be submitted to the Laboratory. It is a requirement that sample location and description data be entered into the GA databases before laboratory work begins.

Person submitting samples:	A Clark		
Project Code:		**Project Name:**	
Sample Number (SITE ID):	2018411004 / 2799851		
Date submitted:	29 Apr 2019		

GEOGRAPHIC AREA/ PROVINCE/ BASIN:	Warramunga Province		
1:250k SHEET NAME:	Alroy	**NUMBER:**	SE5315
1:100k SHEET NAME:	Dalmore	**NUMBER:**	6058
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94)	GDA94		
ZONE:			
EASTING:		**NORTHING:**	
LATITUDE:	-19.699	**LONGITUDE:**	135.536

FORMAL NAME:	N/A
INFORMAL NAME:	Garnet-muscovite-quartz-chlorite-biotite schist
LITHOLOGY:	Schist

DRILLHOLE ID:	DD79 AL3	**DEPTH FROM:**	255.23
PROSPECT:		**DEPTH TO:**	255.31

Dating Objective

What is the geological question Ar-Ar analysis will potentially solve?

These rocks are part of a low-mid amphibolite facies assemblage that was metamorphosed at ~1845 Ma (in prep). Muscovite ages should provide an estimate of when these rocks were exhumed to the upper crust. The relative timing of cooling between this sample and other samples from the Alroy/Barkley/East Tennnant and Murphy areas may also provide insight into whether these areas were uplifted together or at different times. Due to the presence of significant amounts of chlorite intergrown with biotite in this sample, it is probably not worth analysing the biotite.

What type of age(s) are expected? (e.g. magmatic crystallisation, metamorphism, maximum depositional age, detrital age spectrum):

Cooling age (muscovite)

Mineral target for dating:

Muscovite

Sample Information

Location description (e.g. a sample of x was collected from y, z km from abc town):

Lithological characteristics (rock description):

Coarse biotite, chlorite, muscovite and garnet porphyroblast bands are interlayered with finer grained chlorite, muscovite mats and clumps of fine-grained garnets. These bands are interpreted as relict primary fabric (i.e. bedding). *There is little evidence of significant strain, although the courser bands locally contain a moderate crenulation cleavage.*

Relative age constraints (pertinent geological relationships with surrounding units and any previous geochronology):

A single population of metamorphic monazite from a nearby drill core (DDH005) that intersected similar lithology has an age of 1844 ± 3 Ma (in prep). No other age information is available.

Thin section description (if available):

See sample description above.

Photograph(s):

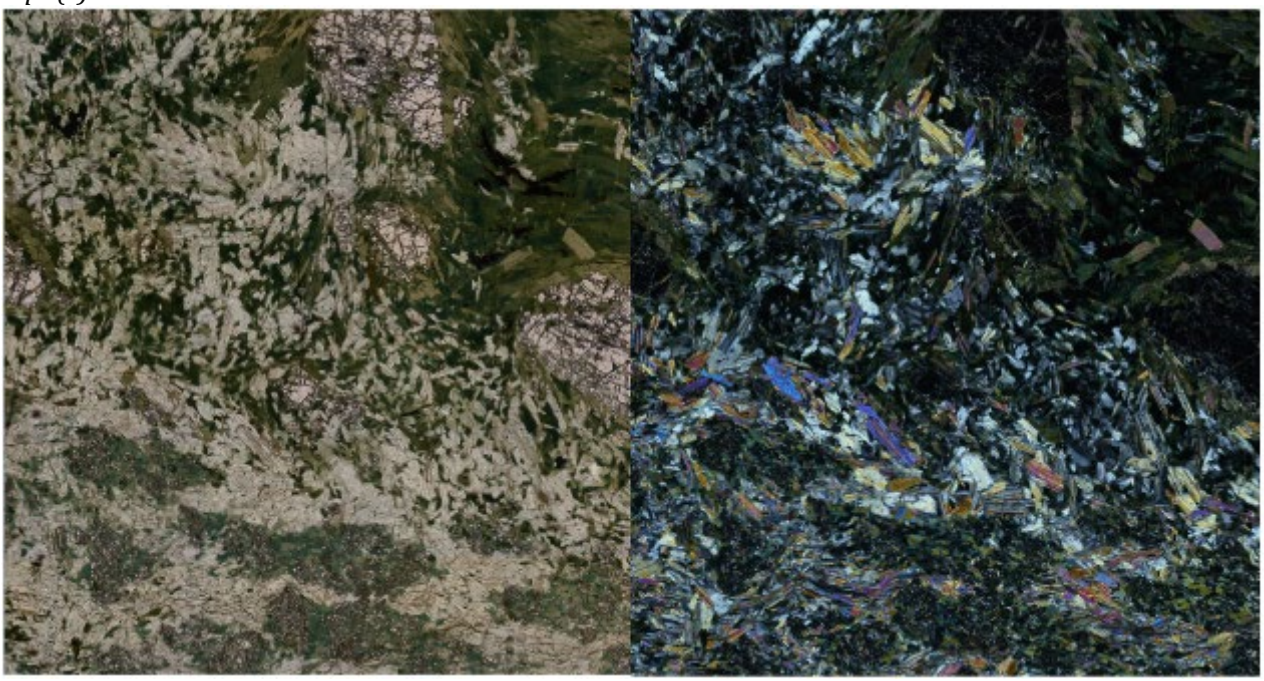

Figure 1: PPL and XPL image of sample showing garnet/chlorite aggregates in quartz-muscovite matrix (bottom left) and coarse garnet, biotite/chlorite, muscovite band (top left).

Relevant bibliographic references:

Confidential Data

Is this sample confidential? No

If so, until what date and reason?