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):	2018339540 / 2786118		
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:	-19.520077	**LONGITUDE:**	135.95583

FORMAL NAME:	N/A
INFORMAL NAME:	Folded cordierite-sillimanite gneiss
LITHOLOGY:	Gneiss

DRILLHOLE ID:	DDH005	**DEPTH FROM:**	177.20
PROSPECT:		**DEPTH TO:**	177.25

Dating Objective

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

Amphibolite facies metamorphism and deformation of this rock are known to have occurred at ~1845 Ma (unpublished monazite ages). Mica ages should therefore indicate when these rocks were uplifted? and cooled through the 'closure temperatures' of biotite/muscovite. As the muscovite in this sample locally overprints the gneissic layering, its age may indicate the timing of a second thermal event.

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

Cooling ages (biotite and muscovite)

Mineral target for dating:

Biotite and muscovite

Sample Information

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

Lithological characteristics (rock description):

This sample is similar to sample 2018339537. It contains andalusite-sillimanite-plagioclase-quartz-biotite bands interlayered with quartz and muscovite-quartz-feldspar-cordierite bands that collectively define a moderate gneissosity. In this sample, muscovite grains are only weakly aligned to this gneissosity. Biotite grains partly define the gneissic fabric, similar to 20189537.

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

A single population of metamorphic monazite from this rock package 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):

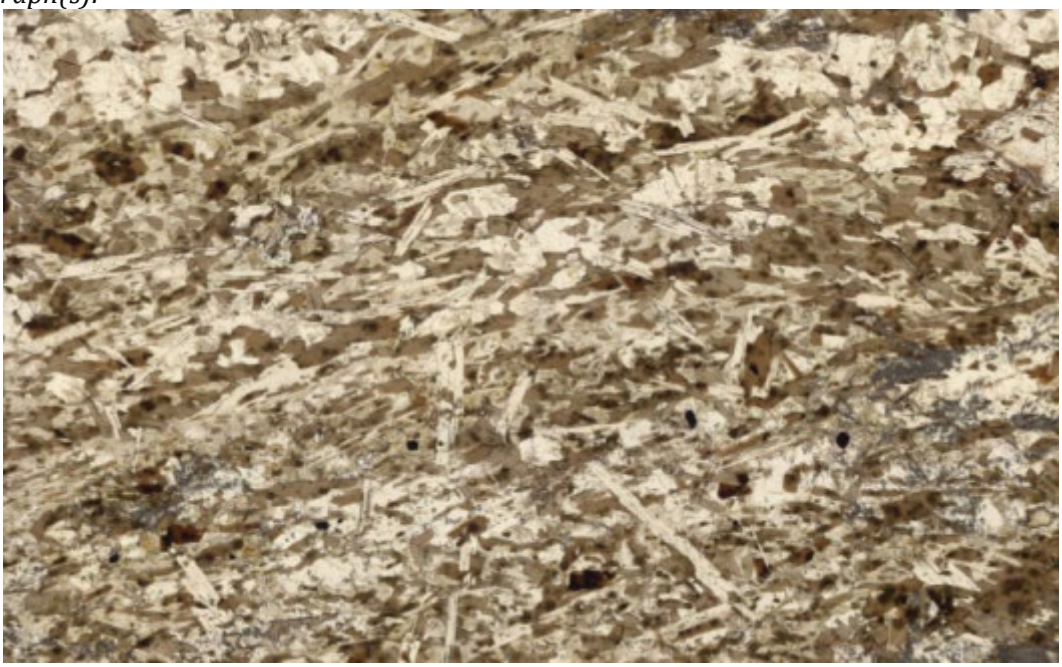

Figure 1: PPL image of sample. FOV approx. 3mm across.

Relevant bibliographic references:

Confidential Data

Is this sample confidential? No

If so, until what date and reason?