National Argon Map: an AuScope Initiative
$^{40}Ar/^{39}Ar$ Geochronology Laboratory Sample Submission Form

This form must be fully completed before any work can be submitted to the Laboratory.

Person submitting samples: Naina (PhD student- MinEx CRC), ANU
Project Title: Cambro-Ordovician magmatism and deformation at the eastern margin of Gondwana, South Australia: Insights into tectonic processes and mineral potential
Sample Number: N1902
Date submitted:

GEOGRAPHIC AREA/ PROVINCE/ BASIN:	
1:250k SHEET NAME: Barker	**NUMBER:** S15413
1:100k SHEET NAME: Milang	**NUMBER:** 6627
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94) WGS84	
ZONE:	
EASTING:	**NORTHING:**
LATITUDE: 35°10'35.94''S	**LONGITUDE:** 138°53'25.79''E

STRATIGRAPHIC UNIT FORMAL NAME: Backstairs Passage Formation
STRATIGRAPHIC UNIT INFORMAL NAME: Backstairs Passage Formation
LITHOLOGY: Weathered and kaolinised metasandstones and meta-siltstones

DRILLHOLE ID (if applicable):
PROSPECT (if applicable):
DEPTH FROM (metres):
DEPTH TO (metres):

Dating Objective

What is the geological question $^{40}Ar/^{39}Ar$ analysis will address?

Ar-Ar analysis of this unit would help in timing the metamorphic event in the region.

What type of age(s) are expected? (e.g. magmatic crystallisation, metamorphism, fluid alteration/mineralisation, cooling, shearing etc):

Cooling and metamorphic ages.

Mineral target(s) for dating (provide approximate K content if known):

Biotite mineral separate (9% K).

Estimated $^{40}Ar/^{39}Ar$ age (e.g. Cenozoic, Mesozoic, Paleozoic, Proterozoic, Archean – provide estimated numerical age range if possible):

The estimated age for this unit is Early Cambrian (520Ma)

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

Sample Information

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

The sample was collected from an outcrop by the road (35°10'35.94''S, 138°53'25.79''E)

Lithological characteristics (rock description):

The sample is a pelite overlying the Quartzite.

Thin section description (if available): Description not available.

Photograph(s) e.g. field site, hand-specimen, photomicrograph: Below is a outcrop view highlighting the dyke intruding Mannum Granite. This image was captured during my PhD field trip in June 2019.

Relevant bibliographic references:

Jago, J. B., & Gatehouse, C. G. (2009). The Type Section of the Cambrian Backstairs Passage Formation, Kanmantoo Group, South Australia. Transactions of the Royal Society of South Australia, 133(1), 150-163.