

# National Argon Map: an AuScope Initiative

## <sup>40</sup>Ar/<sup>39</sup>Ar Geochronology Laboratory Sample Submission Form

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

<b>Person submitting samples:</b> Naina (PhD student- MinEx CRC), ANU
<b>Project Title:</b> Cambro-Ordovician magmatism and deformation at the eastern margin of Gondwana, South Australia: Insights into tectonic processes and mineral potential
<b>Sample Number:</b> 2746164
<b>Date submitted:</b>

<b>GEOGRAPHIC AREA/ PROVINCE/ BASIN:</b>	
<b>1:250k SHEET NAME:</b> Olary	<b>NUMBER:</b> S15402
<b>1:100k SHEET NAME:</b> Anabama	<b>NUMBER:</b> 6932
<b>LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94) WGS84</b>	
<b>ZONE:</b>	
<b>EASTING:</b>	<b>NORTHING:</b>
<b>LATITUDE:</b> 32°43'6.26"S	<b>LONGITUDE:</b> 140°12'31.97"E

<b>STRATIGRAPHIC UNIT FORMAL NAME:</b> Anabama Granite
<b>STRATIGRAPHIC UNIT INFORMAL NAME:</b> Anabama Granite
<b>LITHOLOGY:</b> Granite to granodiorite, coarse-grained, biotitic, S-type to I-type

<b>DRILLHOLE ID (if applicable):</b> ANDDH 2
<b>PROSPECT (if applicable):</b> Mo, Cu
<b>DEPTH FROM (metres):</b> 123.3m
<b>DEPTH TO (metres):</b> 123.4m

### Dating Objective

***What is the geological question <sup>40</sup>Ar/<sup>39</sup>Ar analysis will address?***

The Anabama Granite has been poorly studied and dated in the past. It has never been dated using Ar-Ar geochronology. The granite displays evidences of multiple thermal and mineralisation events. Dating it would thus help in timing the different thermal events in the area.

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

Alteration/mineralisation, cooling, metamorphic ages.

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

White mica (10%K).

***Estimated <sup>40</sup>Ar/<sup>39</sup>Ar age (e.g. Cenozoic, Mesozoic, Paleozoic, Proterozoic, Archean – provide estimated numerical age range if possible):***

Estimated age for this unit is Early Ordovician (468Ma).

***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):***

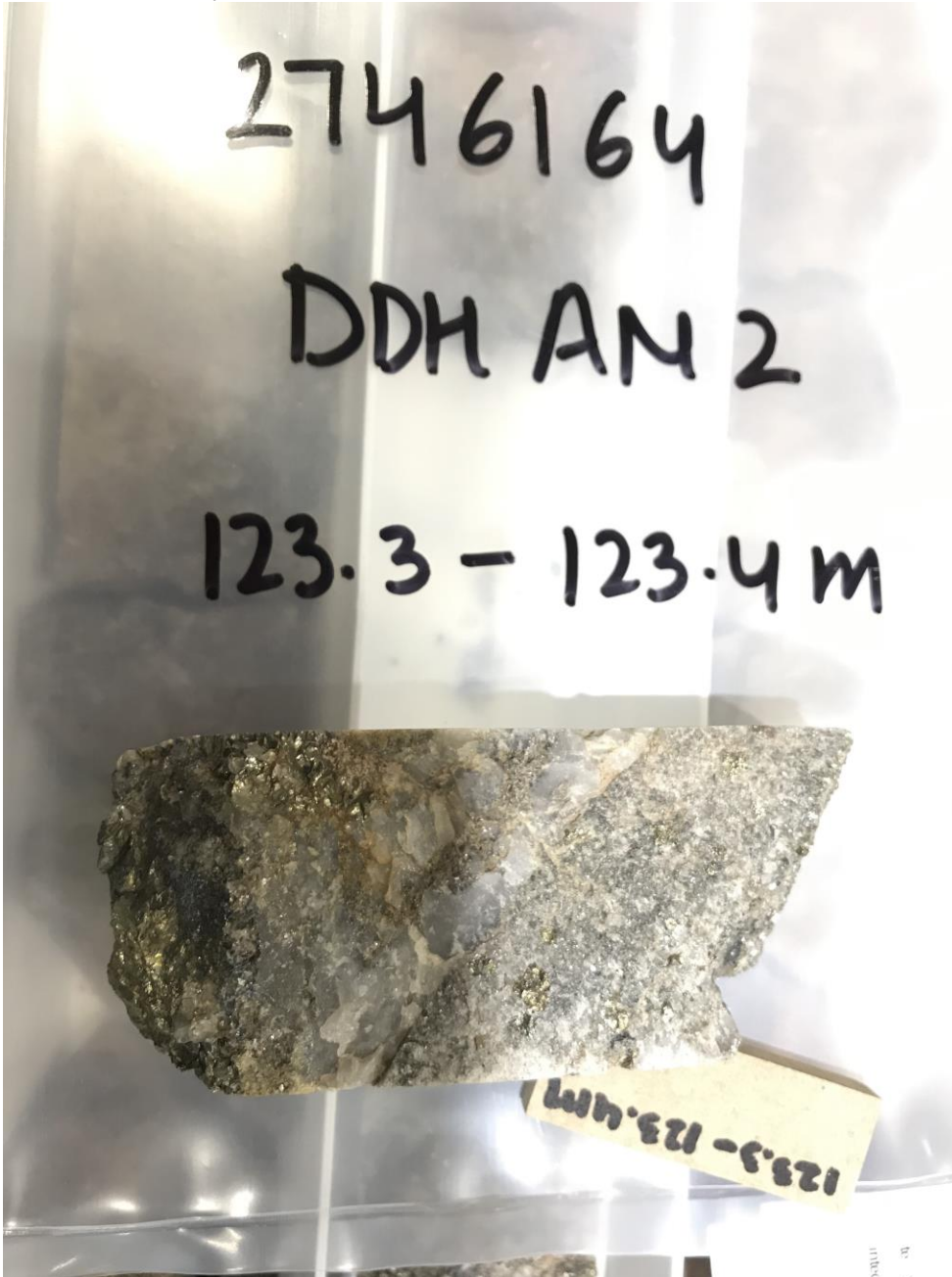
The sample was collected from the Tonsley Drill Core library, Adelaide. The sample belongs to the hole DDH AN 7 (32°43'6.26"S, 140°12'31.97"E).

**Lithological characteristics (rock description):**

. The core is a greisen zone in contact with quartz vein containing massive pyrite, and greisen zone with fine-grained muscovite and pyrite.

**Thin section description (if available):** No thin section description available.

**Photograph(s) e.g. field site, hand-specimen, photomicrograph:** Attached is a photograph of the core I sampled in June 2019 for my PhD.



**Relevant bibliographic references:**

Morris, B. J. (1979). Porphyry style Copper/Molybdenum Mineralisation at Anabama Hill. Department of Mines and Energy.