Sample 13 of 20: 237134

Person submitting samples: Josh Guilliamse	
Affiliation:	
Project Title:	
Sample Number(s) (including IGSN if one exists): 237134	
Mineral separation required? Yes or No: Yes	
Date submitted:	

GEOGRAPHIC AREA/ PROVINCE/ BASIN: Paterson Orogen		
1:250k SHEET NAME: Anketell	NUMBER: SF51-02	
1:100k SHEET NAME: Chauncy	NUMBER: 3356	
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94) GPS GDA94		
ZONE : 51		
EASTING : 414194	NORTHING: 7704423	
LATITUDE: -20.7579	LONGITUDE: 122.1757	

STRATIGRAPHIC UNIT FORMAL NAME *:
STRATIGRAPHIC UNIT INFORMAL NAME:
LITHOLOGY: Metapsammite

DRILLHOLE ID (if applicable): 12AMD0015
PROSPECT (if applicable): Corker
DEPTH FROM (metres): 549.53 m
DEPTH TO (metres) : 549.82 m

^{*} Stratigraphic Unit names can be searched and checked within the Australian Stratigraphic Units Database via the following link: https://asud.ga.gov.au/

Dating Objective

What is the geological question ⁴⁰Ar/³⁹Ar analysis will address?

Dating metamorphism in the least-altered metapsammite

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

Metamorphism

Mineral target(s) for dating:

Biotite

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

Mid- to Late-Neoproterozoic

Sample Information

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

Sample 237134 was collected from drillhole 12AMD0015 at the Corker prospect in the Paterson Orogen. Drillhole 12AMD0015 is located 400 km E of Port Hedland and 100 km N of the Telfer gold mine in Western Australia.

Lithological characteristics (rock description):

Metapsammite, least-altered. Biotite defines a pervasive foliation.

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

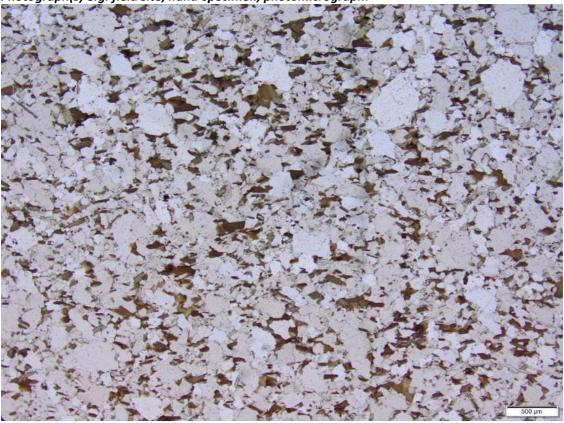
The sample is from basement under Canning Basin sediments and currently assumed to be part of the Yeneena Basin. The metamorphism & foliation age is expected to be Neoproterozoic, corresponding to one of either the

Miles (c. 810 – 650 Ma) or Paterson (c. 550 Ma) Orogenies. Sediments of the Yeneena Basin have a maximum depositional age of c. 831 Ma.

Thin section description (if available):

Poorly-sorted, granoblastic quartz metapsammite. Minor biotite, white mica, zircon, ?apatite. Quartz shows undulose extinction with some recrystallization along grain boundaries. Local triple junctions. Alignment of biotite and muscovite along foliation.





Relevant bibliographic references:

Towner, RR 1982, Anketell, Western Australia (2nd edition): 1:250 000 Geological Series Explanatory Notes: Geological Survey of Western Australia.

Gardiner, NJ, Maidment, DW, Kirkland, CL, Bodorkos, S, Smithies, RH and Jeon, H 2018, Isotopic insight into the Proterozoic crustal evolution of the Rudall Province, Western Australia: Precambrian Research, v. 313, 31–50.

Maidment, D, Huston, DL, Maas, R, Czarnota, K, Neumann, N, McIntyre, A and Bagas, L 2008, The Nifty-Kintyre-Duke Cu-U-Pb-Zn mineralizing events: Links to the evolution of the Yeneena Basin, northwest Paterson Orogen, in GSWA 2008 extended abstracts: promoting the prospectivity of Western Australia: Geological Survey of Western Australia: Record 2008/2, p. 27–29. Bagas, L 2004, The Neoproterozoic Throssell Range and Lamil Groups, northwest Paterson Orogen, Western Australia - a field guide: Geological Survey of Western Australia, Record 2004/15, 18p.

Bagas, L and Nelson, DR 2007, Provenance of Neoproterozoic sedimentary rocks in the northwest Paterson Orogen, Western Australia, in Proceedings of the Central Australian Basins Symposium (CABS), Alice Springs, Northern Territory, 16-18 August 2005 edited by TJ Munson, TJ Munson, GJ Ambrose and GJ Ambrose: Northern Territory Geological Survey: Special Publication, p. 1–10.