Sample 14 of 20: 237196

Person submitting samples: Josh Guilliamse
Affiliation: GSWA
Project Title:
Sample Number(s) (including IGSN if one exists): 237196
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: 414135	**NORTHING:** 7704485
LATITUDE: -20.7574	**LONGITUDE:** 122.1752

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

DRILLHOLE ID (if applicable): 14AMD0043
PROSPECT (if applicable): Corker
DEPTH FROM (metres): 253.41 m
DEPTH TO (metres): 253.50 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 $^{40}Ar/^{39}Ar$ analysis will address?
Dating alteration associated to mineralisation in an altered metapelite

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

Mineral target(s) for dating:
Biotite

Estimated $^{40}Ar/^{39}Ar$ 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 237196 was collected from drillhole 14AMD0043 at the Corker prospect in the Paterson Orogen. Drillhole 14AMD0043 is located 400 km E of Port Hedland and 100 km N of the Telfer gold mine in Western Australia.

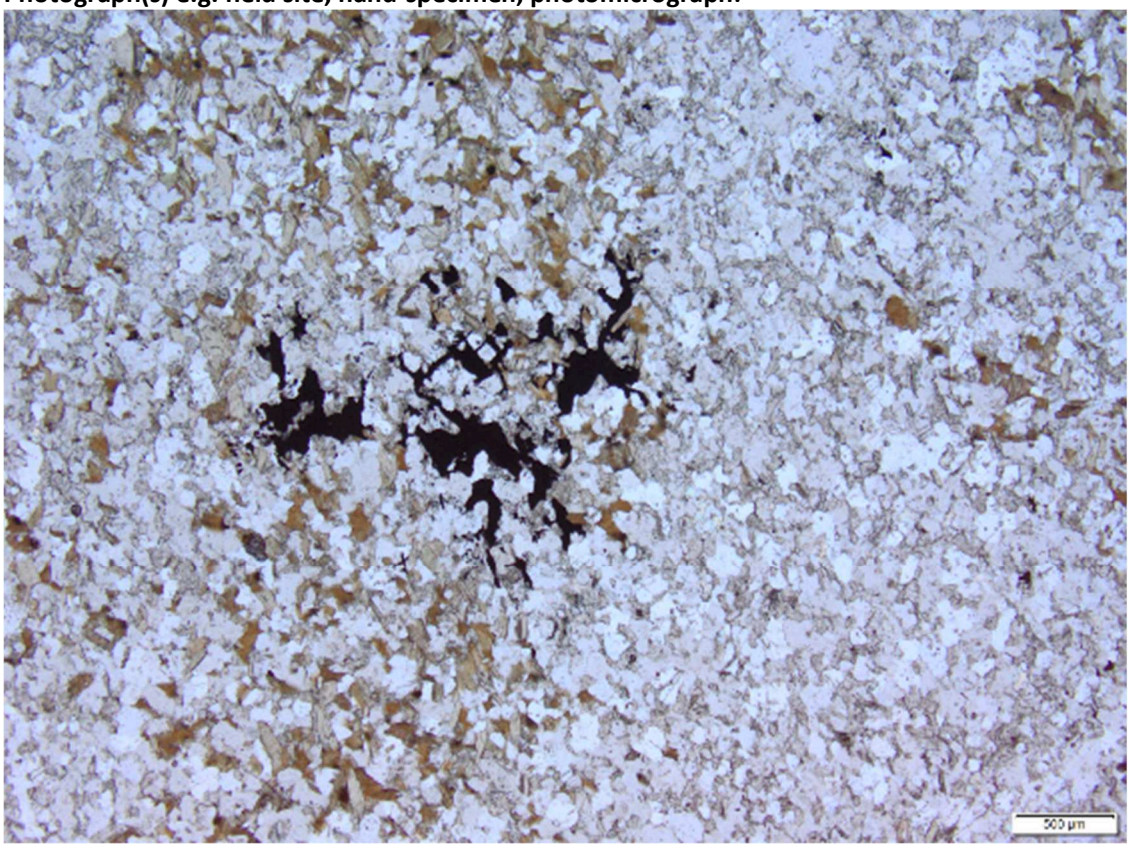
Lithological characteristics (rock description):
Quartz-feldspar metapelite with biotite–sulfide alteration.

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. Alteration & mineralisation is expected to be one of either Miles or Paterson Orogeny timelines.

Thin section description (if available):
Moderately well-sorted granoblastic qtz-feldspar metapelite with biotite-sulfide alteration.

Photograph(s) e.g. field site, hand-specimen, photomicrograph:



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.*