

Uranium Exploration Australia Limited



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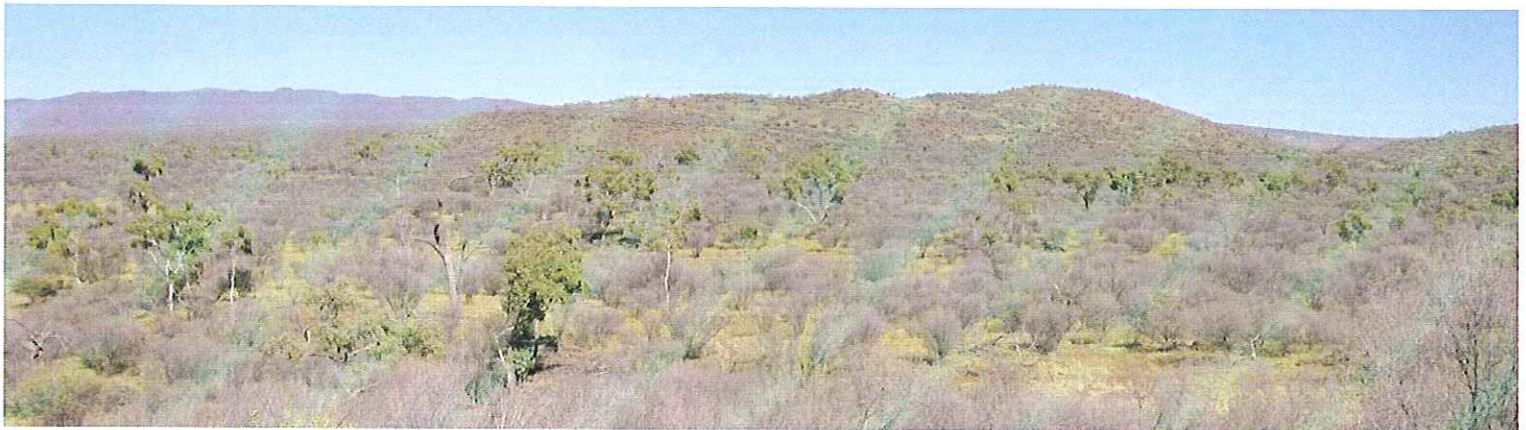
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~~Ngalia (EL24566)~~

~~and~~

Yambla JV (EL26142)

Geological Mapping and Targets



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UXA-01
25 May 2010

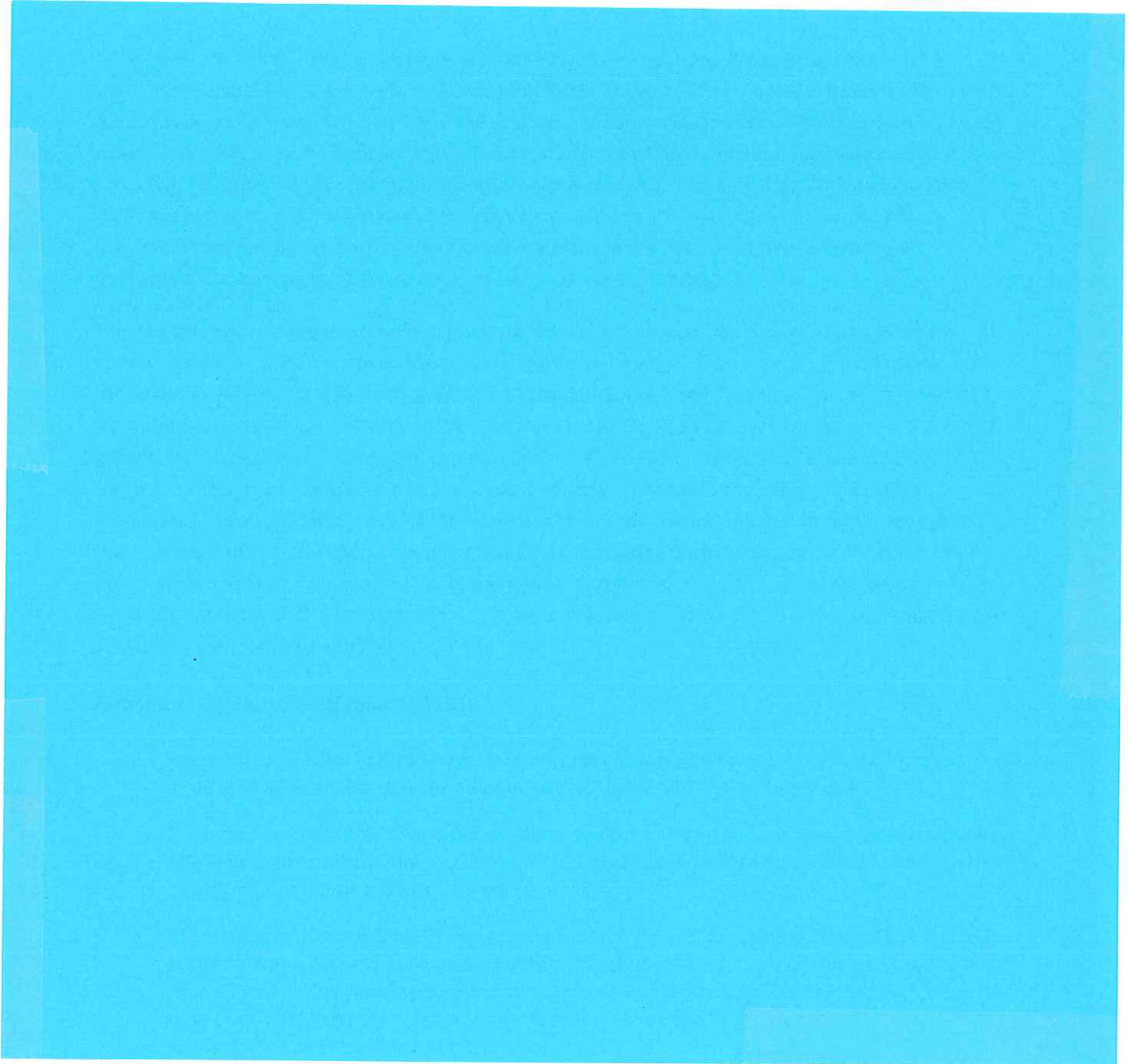
Summary

UXA has also recently entered into a JV with Cullen Resources over EL26142 in the Harts Ranges. No significant work has been done by Cullen Resources on the EL, however the area was extensively explored by PNC Exploration (Aust) Pty Ltd (PNC) in the early to mid 1990's. The Yambla and Bonnie prospects were identified as having the best potential to host a significant U deposit - although there are also a number of other prospects of interest located on the surrounding ground which UXA currently has under application.

At both areas the objective of this review is to:

- identify the regional structural setting;
- identify the key characteristics at the prospects;
- identify the timing of events where possible;
- assist with the production geological exploration maps, and
- identify targets.

Ngalia



Yambla JV

At the Yambla JV, concretions containing uraninite have been deposited during magmatic hydrothermal event(s) at a relatively late stage in the history of the Harts Ranges. The mapping done during this review indicates Yambla prospect is a small high grade target – approx 40-60m along strike and 2-5m across strike (true width). It is possible that the mineralised shoot plunges gently to the SW (parallel to a lineation in the schist) and so the best mineralisation may not have been intersected in the PNC drill holes. The uraninite concretions and alteration of the schistose amphibolites at Yambla prospect has probably formed above an intrusion or zone of pegmatite which is located down dip to the SW of the prospect. The age of the uraninite from Yambla (350 Ma, University of Adelaide) is the same as that of a number of the younger pegmatite dykes in the area at other U prospects (388-350 Ma, University of Adelaide) suggesting a link that is supported by the geology at prospects to the west of Yambla prospect.

Haematite + epidote + quartz alteration, biotite alteration in retrograde shear zones and mineralisation of schistose quartz – plagioclase – (garnet) sills and dykes with biotite alteration occur near undeformed E-W striking, steeply dipping pegmatite, aplite and quartz veins. In addition, U mineralisation is noted from a number of pegmatite dykes in the area which have ages of 445-425 Ma and 388 – 350 Ma. Two stages of aplite and pegmatite intrusion into an E-W fault zone at Hoff prospect were observed. The older of these two phases was deformed (faulted) and the younger was associated with stronger radiogenic activity. The mapping done during this review suggests that the younger (undeformed) dykes and pegmatite in the Yambla JV area are most important for U mineralisation and should be the focus of further exploration where they intersect retrograde metamorphic or hydrothermally altered faults, which are shallowly – moderately dipping to the west and/or south-west. Follow up mapping, rock-chip sampling and soil surveys are required to identify the best prospects. Of the areas visited during this review, the Moondyne – Swallow area stands out as having good potential over an area of approximately 650 m north-south x 500 m east-west, where late pegmatite dykes are in contact with NNW striking fault zones with retrograde biotite and quartz + epidote alteration.

Recommendations for Yambla JV EL26142

- If further drilling is done at Yamba, I recommend a SW plunging shoot be considered as a drill target, which was missed by the PNC drilling. Drill holes should be drilled -60° towards the NE.
- At Yambla prospect RC drilling using a large diameter bit is required to overcome the inherent physical nugget. I recommend a sample of at least 10 kilograms would need to be split out on site and the entire split milled and further split in the lab to achieve a representative sample.
- I recommend no further work at Bonnie prospect given that the target is relatively small and low grade.
- I recommend that at the Moondyne – Swallow prospect (area of approx 650 x 500m), further mapping (1:5,000 scale) and soil sampling should be undertaken at to determine the scale of the mineralisation present and its relationship to the geology (including pegmatite) and structure (including retrograde shear zones).

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Uranium Exploration Australia Limited

Ngalia EL24566 & Yambla JV EL26142 – Mapping and Targets

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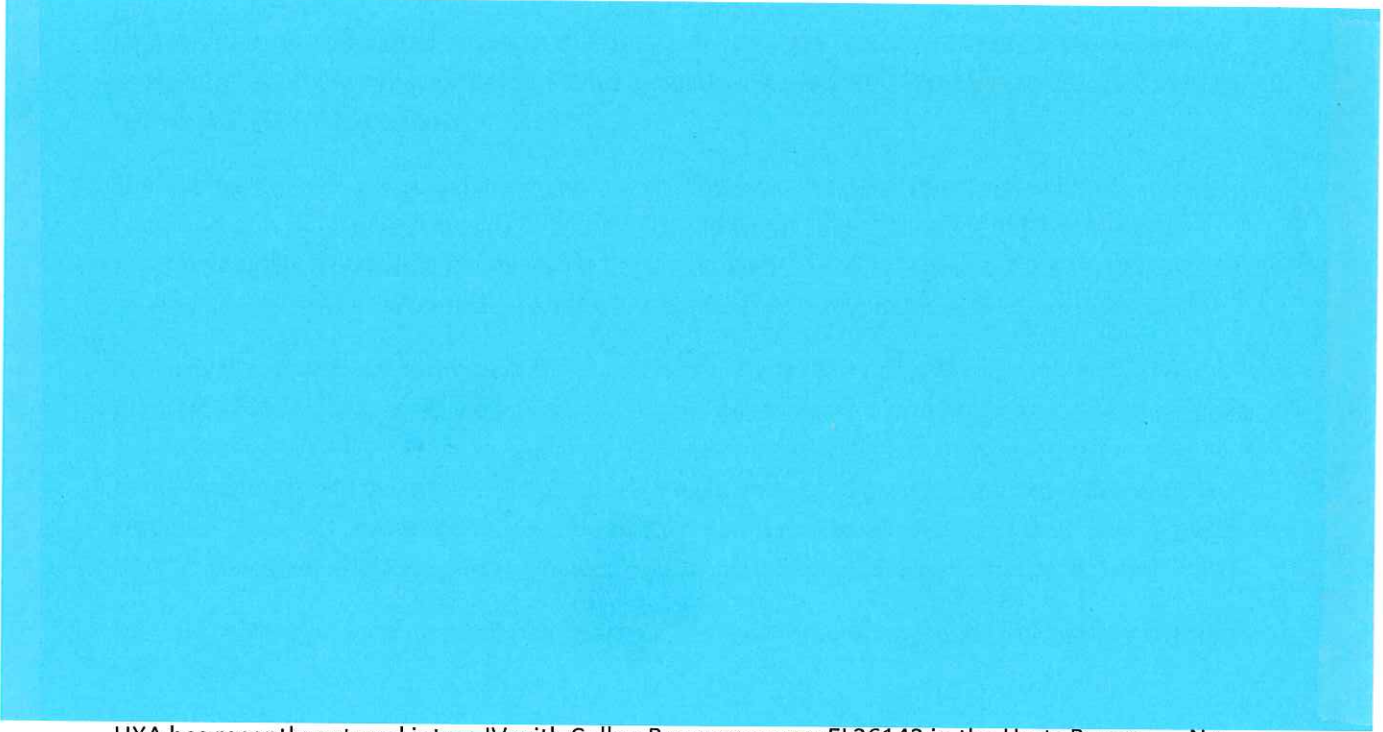
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Disclaimer: The opinions expressed in this report have been based on the information supplied by Uranium Exploration Australia Limited (UXA). The opinions in this report are provided in response to a specific request from UXA to do so. I have exercised all due care in reviewing any supplied information and making the conclusions and recommendations presented in this report. The accuracy of the results and conclusions from the review are reliant on the accuracy and completeness of the supplied data. I do not accept responsibility for any errors or omissions in supplied information and do not accept any consequential liability arising from commercial decisions or actions resulting from the conclusions and recommendations derived from this information.

1. Introduction



UXA has recently entered into a JV with Cullen Resources over EL26142 in the Harts Ranges. No significant work has been done by Cullen Resources on the EL, however the area was extensively explored by PNC in the early to mid 1990's. Based on PNC reports of the previous work, the Yambla and Bonnie prospects have been identified as having the best potential to host a significant U deposit although there are also a number of other prospects of interest located on the surrounding ground which UXA currently has under application.

2. Project Scope and Objectives

The objectives are to:


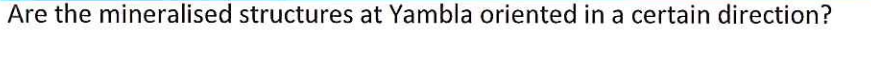
1. define the regional structural setting for the **Ngalia Thrust** and Yambla JV tenements utilising all the available datasets (aeromagnetics, gravity, airborne radiometrics etc);
2. categorise the nature of the "Anomaly B" and "Yambla" prospects within the regional structural setting;
3. establish the temporal and spatial relationships of mapped/interpreted structures and mineralisation;
4. assist UXA geologists with the production of a regional interpretative geology map at 1:10,000 scale;
5. identify additional prospective structural sites conducive to mineralisation; and
6. assist UXA geologists with the production of a reliable detailed geological map of the bedrock lithology and structure at a suitable scale (eg 1:2,000).

Secondary objectives at Crystal Creek Anomaly B are to:

Secondary objectives at Harts Ranges JV are to:

1. assist UXA geologists ground truth structures mapped by PNC and attempt to understand the spatial relationship to uranium mineralisation; and
2. assist UXA geologists to map out the distribution of uraninite at Yambla. PNC defined a 1km zone of anomalism trending NS.

Key questions:

1. 
2. 
3. Are the mineralised structures at Yambla oriented in a certain direction?
4. Is the zone of anomalous mineralisation at Yambla structurally or lithologically controlled?

4. Yambla JV

The Yambla JV over EL26142 is located at the western edge of the Entia Dome which is a upper amphibolite grade sequence of gently folded, strongly schistose and gneissic rocks. The sequence generally dips gently to the west, although there are a number of post-peak metamorphic layer parallel faults and some open folding of the sequence.

In the eastern part of the area of interest is the Early Proterozoic Entia Dome sequence containing garnet bearing felsic gneiss and schist interbedded with amphibolite schist. Bedding is preserved in some locations in these rocks where the schistosity is least developed. The protolith was a sedimentary sequence of sandstone and shale. The schistosity has formed near parallel to bedding. This is overlain by the Bruna Gneiss (1750Ma) which was not observed in this review but is understood to be a leucocratic sequence exposed immediately west of the Swallow prospect. The Bruna Gneiss is overlain by the Irindina Gneiss which is a sequence of meta-sedimentary garnet bearing quartzo-feldspathic gneiss and schist. The Irindina Gneiss contains the Riddock Amphibolite Member (Yambla Amphibolite Member in Figure 7) which is a quartz + plagioclase + hornblende schist that is likely a metamorphose volcanic sequence or sub-volcanic sill.

The three areas of interest in this review were selected from the previous work done by PNC Exploration Pty Ltd (PNC):

1. Yambla – a number of high grade concretions occur in weakly retrograde schistosity parallel faults of the Riddock Amphibolite Member, previous drill tested by PNC and later by Deep Yellow.
2. Bonnie – low grade mineralisation is coarse leucocratic schist (metamorphosed and deformed leucocratic sills), previously drill tested by Deep Yellow. The mineralisation is hosted by the Bruna Gneiss.
3. Moondyne – Swallow – Dolerite prospects – has some mineralisation similar to that at Bonnie and also in later (undeformed) pegmatite dykes.

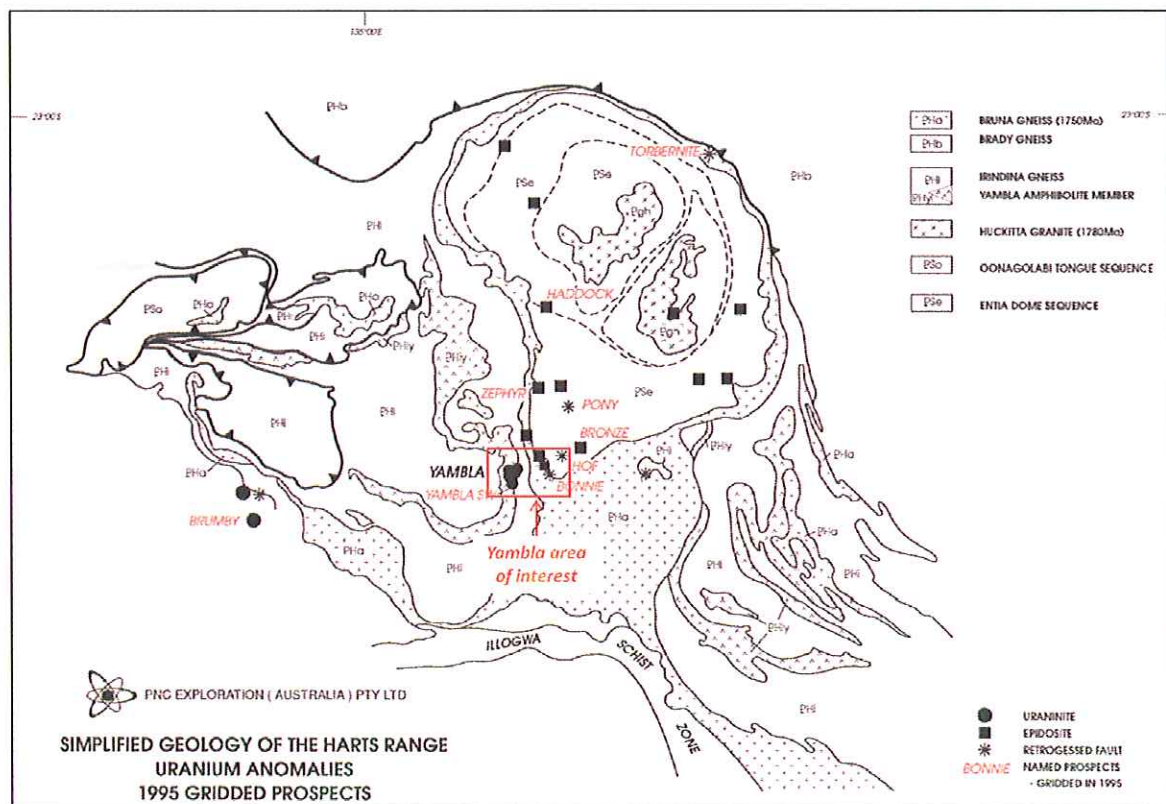


Figure 7. Location of the Yambla JV area of interest for this review at the western edge of the Entia Dome (gently west-dipping schist and gneiss sequence contains a number of U prospects).

Yambla

The Yambla prospect received a lot of attention from PNC as a result of the high U grades returned in some trenches. Twenty-two trenches have been excavated and thirteen drill holes (NQ) totalling 1,028.3m were completed. Uranium mineralisation occurs in the form of high grade spherical concretions of various sizes from 1mm to several centimetres (Figure 8). The concretions occur in retrograde, schistosity parallel layers in the amphibolite schist which generally dips shallowly W to SW but is gently folded and contains faults parallel to the schistosity, at least one of which contains the U mineralisation.

PNC recognised retrograde “white alteration”, consisting of albite + quartz + feldspar alteration as being closely associated with the concretions. PNC report the uraninite concretions in the alteration occur with trace pyrite, pyrrhotite and chalcopyrite suggesting a hydrothermal mineralising system. Dating of the uraninite at Yambla (SHRIMP) has yielded an age of approx 350 Ma, suggesting mineralisation during a late stage of the Alice Springs Orogeny.

The mapping done during this review tested the NW-striking faults and the E-W striking faults mapped by PNC. The western contact of the amphibolite unit is faulted. The western quartz – plagioclase – garnet gneiss and schist is thrust over the amphibolites. A number of shallowly NW plunging folds mapped near the contact suggest movement of the hangingwall to the NE (Figure 9).

The eastern contact of the amphibolites with the quartz – plagioclase – garnet schist is also a faulted margin. The mapping suggests the contact swings towards the NW and then becomes parallel with

the E-W striking Horseshoe Fault. Although the fault is not well exposed, the orientation of the schist, the location of the contact and a number of shallowly plunging, relatively tight E-W fold hinges immediately north of the Horseshoe Fault support the presence of the structure.



Figure 8. One of the strongly radiogenic concretions found in the soil near the site of PNC Trench 4 (immediately north of the road) at Yambla. This concretion is approximately 3 cm in diameter and contains what appears to be uraninite surrounded by clay alteration. Other concretions contain mm scale “veins” of secondary minerals after uraninite.

At surface the mineralisation north of the road occurs in a small area which seems to have 025° trend (true north, approximate given soil creep is likely). South of the road, the U mineralisation has approximately 40m strike and a SE-trend, approximately parallel to the strike of the foliation in that area (Figure 9). The U mineralisation at Yambla occurs in a shoot with a strike extent of approximately 50-60m at surface and is approximately 2m in thickness.

Not all the trench maps done by PNC are available for review. Data from trench 4 (1995 annual report), (Figure 10), located immediately north of the road illustrates the mineralisation following a number of schistosity parallel structures for a distance of approximately 15m down dip to the west and then abruptly stops, although the faulting parallel to the schistosity continues with less extensive alteration. Drilling down dip to the west failed to repeat the trench results or find any significant mineralisation which is consistent with the down-dip results from Trench 4. An alternative explanation for the drill results may be that because the mineralisation is inherently

nuggety due to the concretions, low grade intersections may be a result of the small sample returned from NQ core.

Also it is possible the mineralisation occurs in a shoot which plunges SW or WSW, parallel to the mineral lineation in the schist, rather than to the west. This may explain why the mineralisation in Trench 4 terminates down dip to the west. There is no drilling SW of the surface expression of the shoot at Yambla and so the drilling done by PNC may have missed the higher grades. The folding and orientations of the amphibolite contacts suggests that NE-SW directed compression occurred during at least one of the doming events in the area and so possibly the mineralisation also follows this NE-SW shortening direction. I suggest mineralised shoots may plunge gently (approx 20-30°) to the SW, thereby possibly avoiding the PNC drilling.

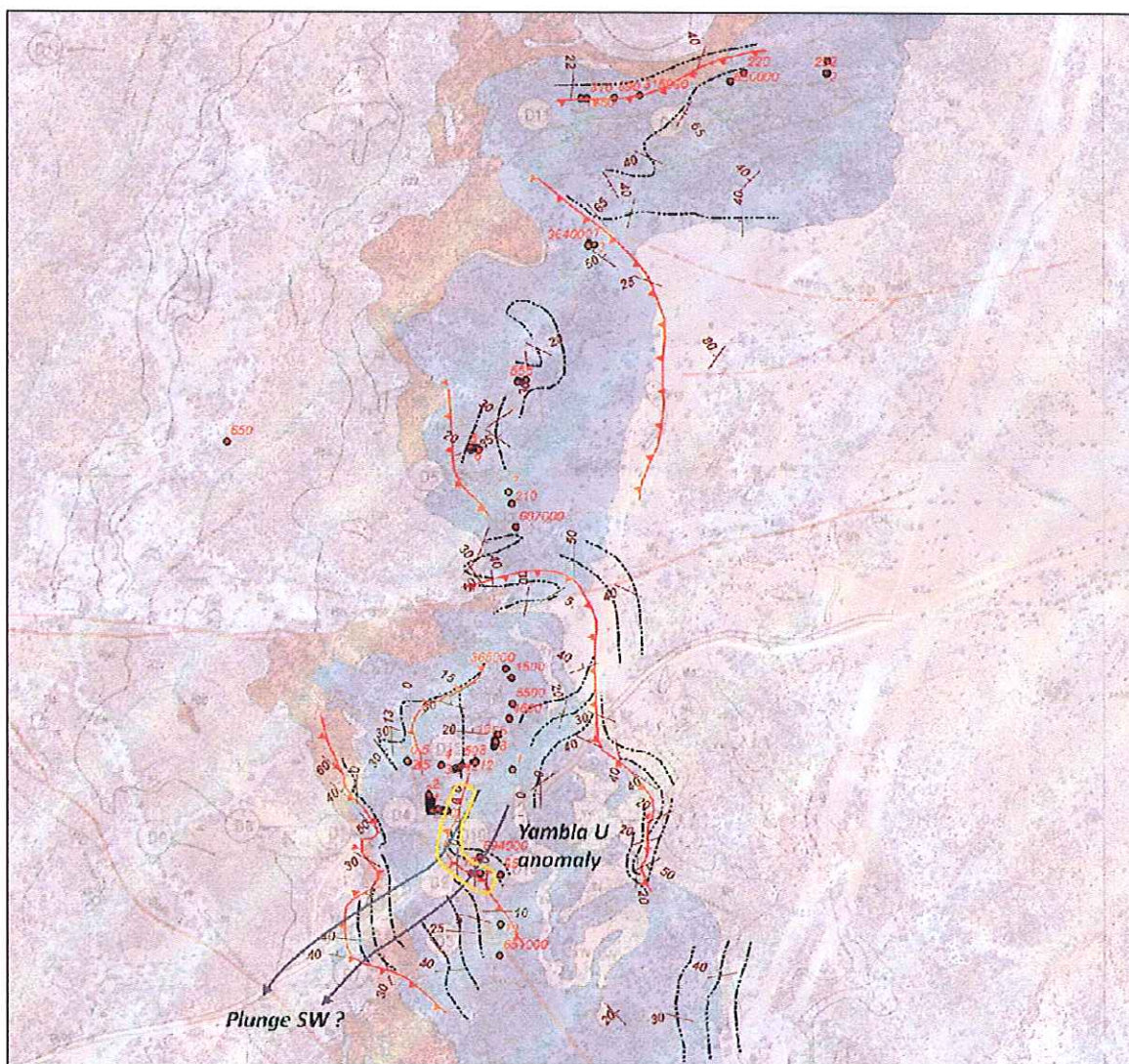


Figure 9. Plan showing mapping at Yambla done during this review over the PNC mapping and Quickbird satellite data. The main U anomaly strikes NNE to the north of the road and SE to the south of the road. The alteration and mineralisation may plunge to the SW, parallel to the main lineation in the schist and so the PNC drilling may have missed the main mineralised target.

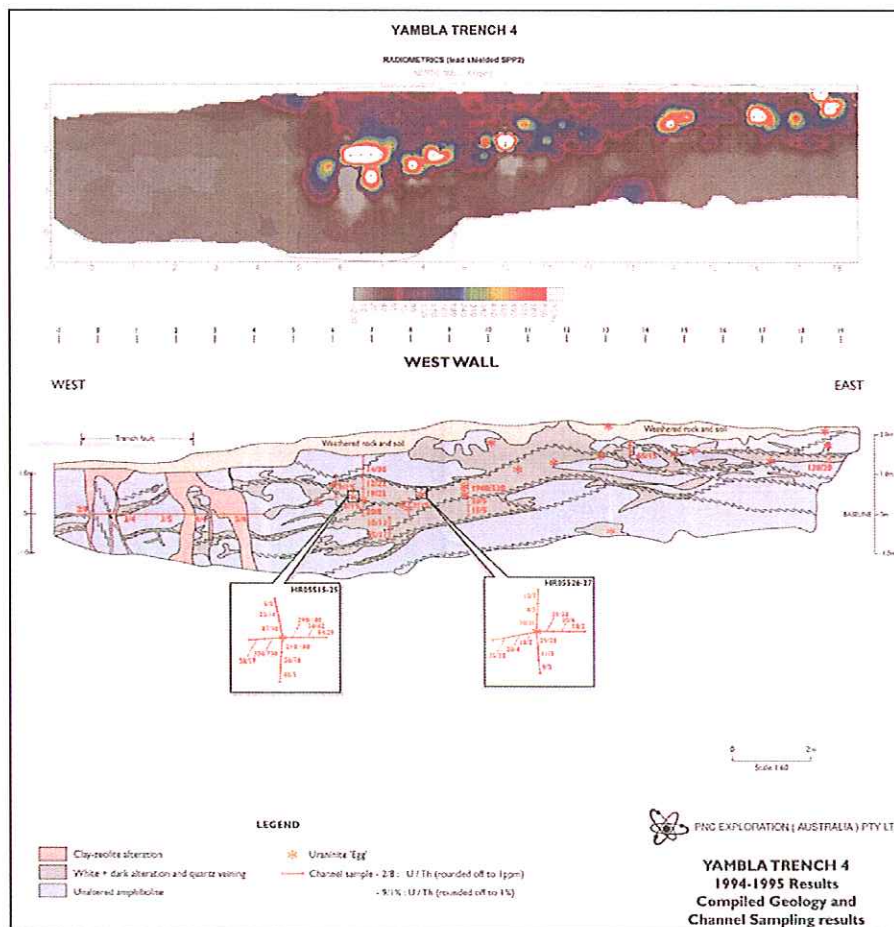


Figure 10. Mapping and radiometric survey of Trench 4 which is located immediately north of the road over the Yambla U anomaly where many strongly radiogenic concretions were found in the soil (Figure 9). Note that the mineralisation at surface here extends over approximately 30-40m in a NNE trend and down dip from surface for approximately 15 m before it abruptly stops in the trench. The strong nugget and small pods of this style of mineralisation make it a very difficult exploration target.

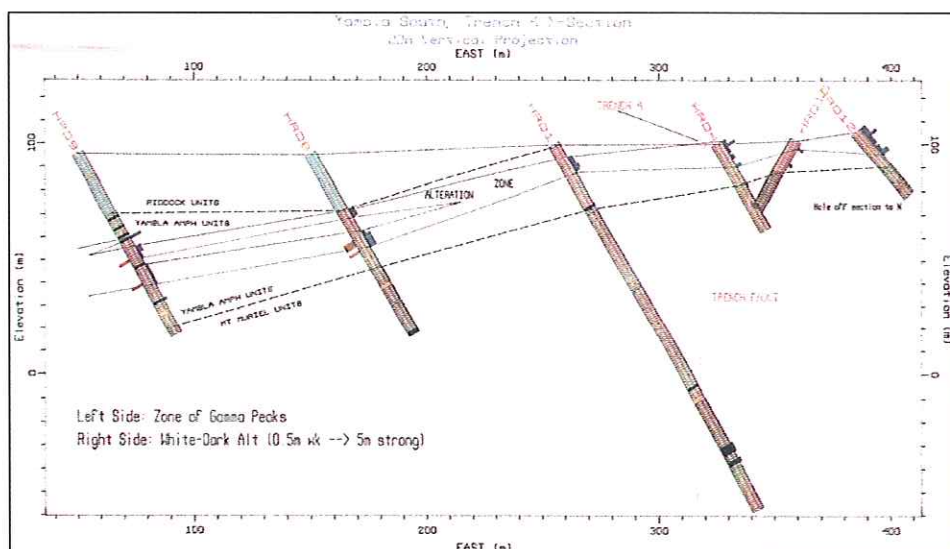


Figure 11. Drill section from PNC campaign below Trench 4 (Figure 10). The drilling returned very poor results, max 60ppm U over 1 m in HR-D-09. Possible this is due to the extremely nuggety mineralisation and relatively small sample (drill core), but may also be because the mineralisation is limited in strike and dip extent to small pods.

Bonnie

Bonnie is hosted by one of a number of quartz – plagioclase – K-feldspar – biotite – (garnet) sills located immediately south of the road from Yambla to Harding Springs (Figure 12). The host rocks have only low radiogenic activity (up to 1,300 cps). The sill is parallel to the foliation and gently folded at the Bonnie prospect. The sill is approximately 0.3-0.4 m thick and several folded limbs are exposed in the Bonnie outcrop over approximately 8 m across strike. The Bonnie sill is generally only weakly mineralised (generally 500-600 cps) has a very short strike length (30-40m) and an overall fold envelope which dips very gently to the west. Along strike (020°) to the north, there is no exposure of the sill where it is overprinted by an E-W striking quartz vein. To the south the prospect meets a large creek where there is only weakly mineralised sill exposed. On the south bank of the creek there are several similar units to those that host Bonnie, some of which show evidence of folding with axial planes parallel to the schistosity (Figure 13). There is no anomalous radiogenic activity in any of these sills and dykes.

The Bonnie sill was not drill tested by PNC, however the adjacent quartz veins were the target of several drill holes completed by Deep Yellow Limited (Deep Yellow) which targeted undeformed (relatively late) steeply dipping quartz veins. Given the relatively young age of the mineralisation at Yambla there may be some merit in this target, however the E-W striking quartz veins at Bonnie and nearby to Bonnie have no radiogenic activity at surface and so present as a high risk target.

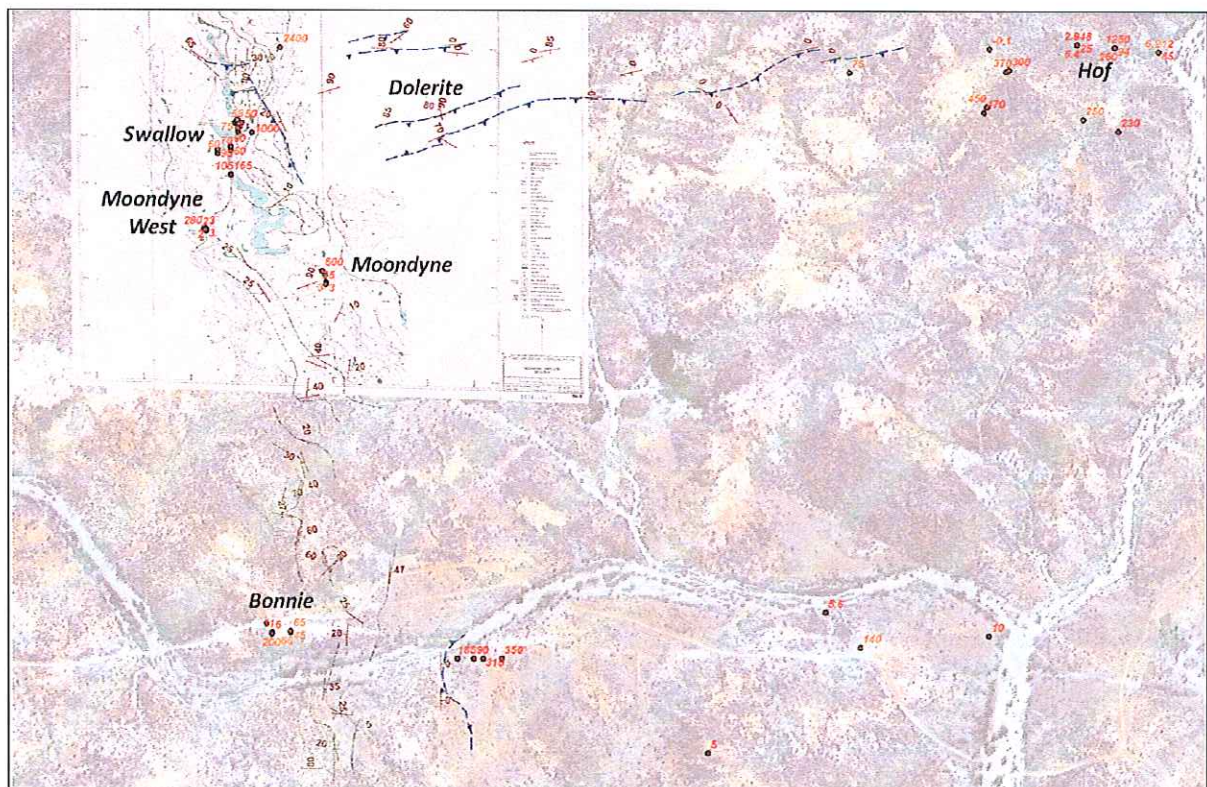


Figure 12. Plan of Bonnie - Moondyne – Swallow – Dolerite – Hof prospects showing mapping and interpretation which was done during this review and the location of the Moondyne Swallow mapping that was undertaken by PNC. Rock chip points with U assay are a compilation from NTGS.

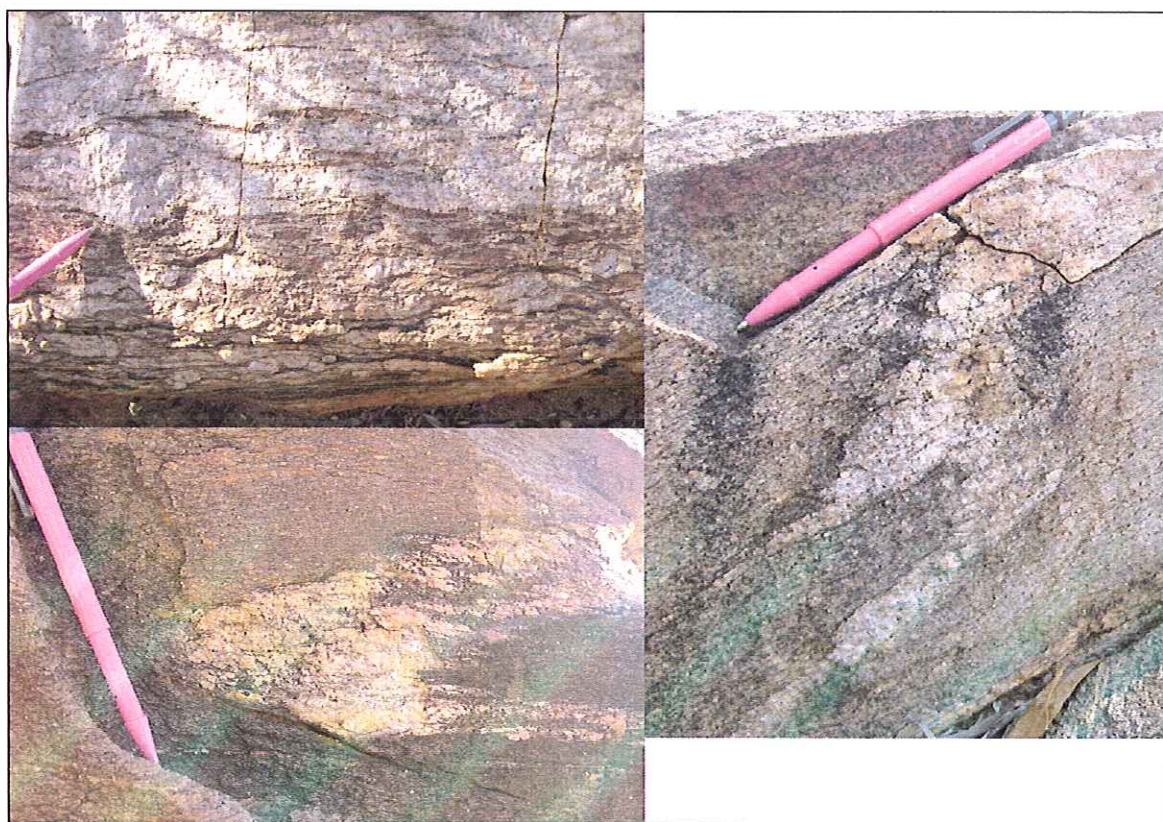


Figure 13. Top – left: Bonnie low grade mineralisation host rock – folded quartz – biotite – plagioclase – (garnet) sill with up to 1300 cps reading from the hand held scintillometer. Bottom left: Folded sill of the same material that hosts the low grade mineralisation at Bonnie with axial plane to fold parallel to the schistosity. Right: Dyke of the same rock that hosts Bonnie mineralisation, also folded by the schistosity. The mineralisation in the rock here (approximately 200m south of Bonnie) is weak – up to 300 cps in this location which seems to be a background reading for this rock type.

The thin, short strike length and low grades at Bonnie are unlikely to host a U deposit that would be amenable to modern bulk mining. There are no other radiogenic targets nearby that provide any additional upside potential. I recommend that UXA not undertake any further exploration at Bonnie at this stage.

Moondyne – Swallow – Dolerite

The Moondyne, Swallow and Dolerite prospects were reviewed as a follow up to the Bonnie prospect. Moondyne and Swallow are approximately 1 km north of Bonnie and the Dolerite prospect is approximately 500 m to the east of Swallow (Figure 12). The Hof prospect which was also visited is further east of Dolerite by a further 1-2 km. There are a number of geological features of these prospects which provide some insights into the U mineralisation in the area.

The mineralisation at Moondyne & Swallow is spread over an area of approximately 650m north-south by 500m east-west, centred on the Swallow prospect (Figure 12). In addition to the occurrences mapped by PNC, strongly radiogenic late stage pegmatites were found during this review that were not previously mapped by PNC.

Near Moondyne a number of schistose sills with anomalous radiogenic activity (similar to Bonnie and with up to 2500 cps) were mapped striking NW and dipping shallowly SW. Additional exposures of

this type of bedded mineralisation in quartzite interbedded with amphibolite occurs 250m along strike to the NW. A further 100m along strike to the NW is the Moondyne West prospect mapped and trenched by PNC.

PNC completed three trenches at Moondyne and four trenches at Swallow which focused on haematite – epidote alteration in retrograde shear zones striking N-S. Pegmatites were mapped by PNC, but no U mineralisation was found associated with the pegmatite. A late pegmatite mapped during this review with coarse K-feldspar, quartz and hornblende (Figure 14) has a strong radiogenic response. The amphibolite, biotite shear zone and schistose sills in contact with the pegmatite were also anomalously radiogenic.



Figure 14. Zoned amphibole – quartz – K-feldspar in a coarse grained pegmatite with very strong radiogenic response (up to 6500 cps) at Swallow prospect. The pegmatite strikes 075, dips steeply and is exposed for approximately 60m strike length.

Haematite – epidote – biotite retrograde shear zones and schistose sills such as those seen at Swallow and south of Moondyne host mineralisation where they are near the late pegmatite. One rock chip sample of a biotite retrograde shear zone taken by PNC north of swallow returned 2400 ppm U and 5400 ppm Th highlighting the potential of these structures. Immediately north of this area is a zone of quartz veining which is suspected to contain the source rocks for this mineralisation. Further work needs to be done in this area.

At Dolerite prospect, low grade and spotty radiogenic anomalies were found associated with late stage K-feldspar – quartz rich pegmatite. The strike extent of the mineralisation is limited to a few small occurrences.

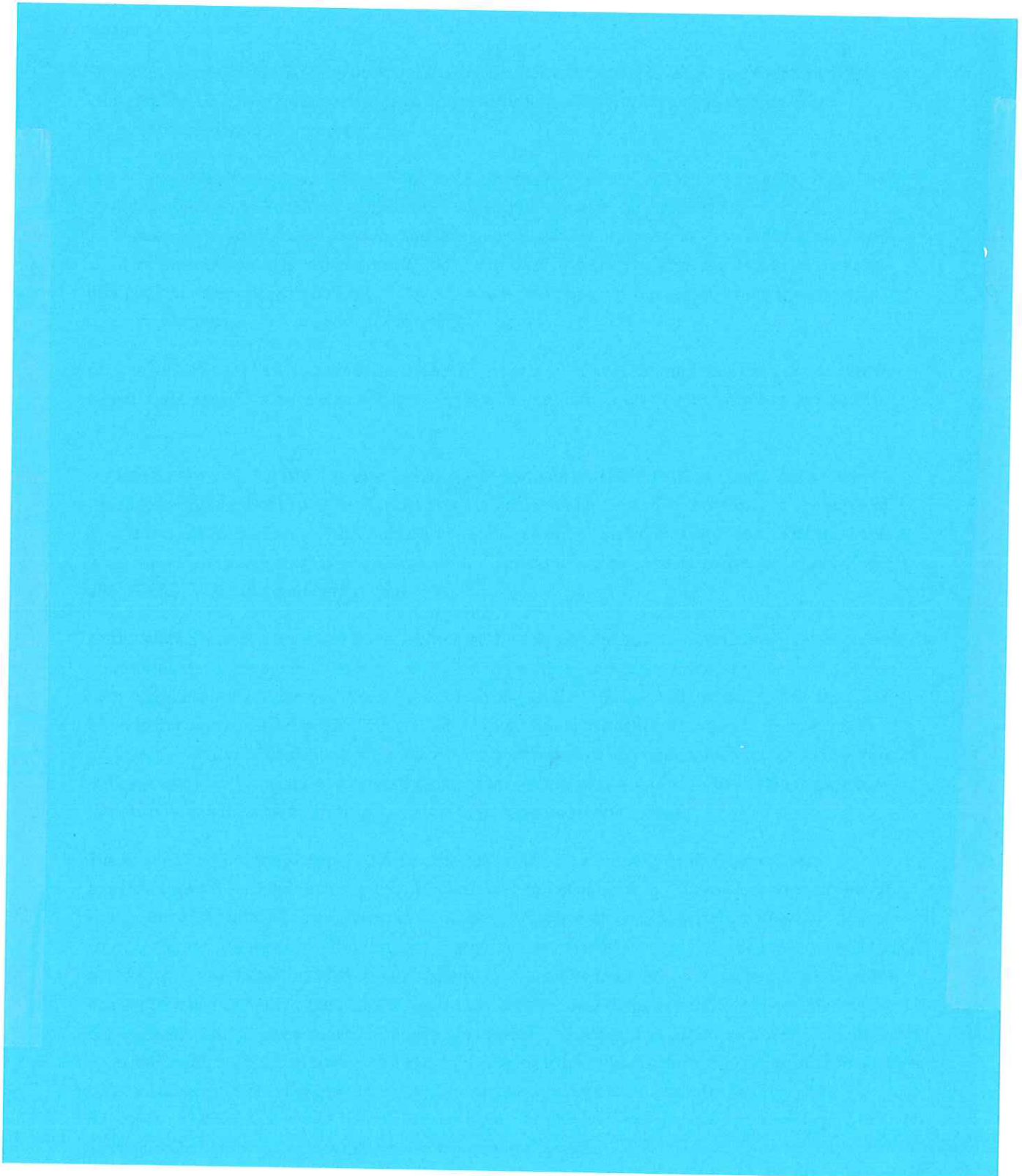
The ages of U-rich pegmatite dykes in the Harts Ranges has been investigated by the University of Adelaide. There are two dominant age groups:

1. 445 – 425 Ma, including the pegmatite at Janet’s prospect, immediately along strike to the east from Hof prospect at the eastern boundary of the Yambla JV lease, and
2. 388 – 350 Ma, which coincides with the age date of the uraninite from Yambla prospect.

At the Hof prospect, immediately along strike to the west from Janet’s prospect, low grade U mineralisation occurs in steeply south dipping, E-W striking dykes. A number of dykes phases are present. Older dykes have been sheared and younger pegmatite with coarse K-feldspar and even later quartz veins striking E-W and NE are undeformed. Possibly these are the two phases of pegmatite previously dated, however more work needs to be done to determine the ages of pegmatites and their relationship to U mineralisation.

No drill holes were completed at Moondyne – Swallow - Dolerite by PNC because the mineralisation was deemed to be too low grade and the prospects were discovered and explored at a relatively late stage in the exploration program. Given the relatively large area over which mineralisation occurs and the relatively high grades that can be achieved from the pegmatite and retrograde shear zones, I recommend the Moondyne – Swallow – Dolerite area be pursued with more detailed mapping and greater coverage than was possible during this review. In addition, soil sampling is required (approx NE 100m x 50m initially) to identify the footprint of mineralisation at this prospect and possible drill targets.

5. Conclusions



Yambla JV

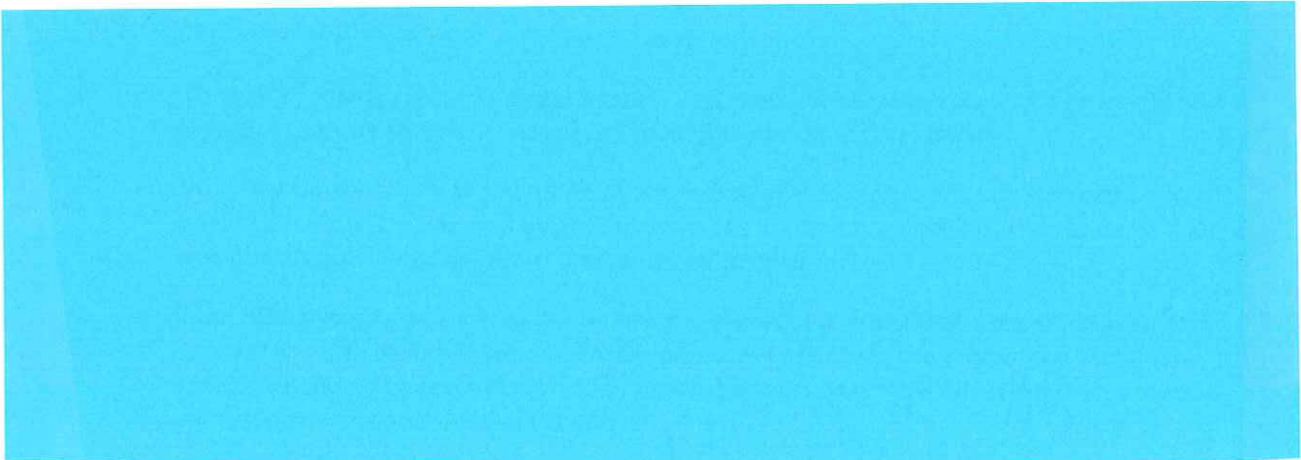
At the Yambla JV, U mineralisation has been deposited during magmatic hydrothermal events at a relatively late stage in the history of the Harts Ranges. The mineralisation takes a number of

different forms. The uraninite concretions in the schistose amphibolites at Yambla prospect have probably formed above an intrusion or zone of pegmatite which is located down dip to the SW of the prospect. The age of the uraninite from Yambla (350 Ma) is the same as that of a number of the younger pegmatite dykes in the area at other U prospects (388 – 350 Ma) suggesting a link that is supported by the geology at prospects to the west of Yambla prospect.

Haematite – epidote – quartz and biotite alteration in retrograde shear zones and mineralisation of schistose quartz – plagioclase – (garnet) sills and dykes with biotite alteration occur near E-W striking, steeply dipping pegmatite, aplite and quartz veins.

In addition, U mineralisation is noted from a number of pegmatite dykes in the area which have ages of 445-425 Ma and 388-350 Ma. Two stages of aplite and pegmatite intrusion into an E-W fault zone at Hof prospect were observed. The older of these two phases was deformed (faulted) and the younger was associated with stronger radiogenic activity. I suggest the younger aged dykes and pegmatite in the Yambla JV area are important for U mineralisation and should be the focus of further exploration where they intersect retrograde metamorphic or hydrothermally altered faults, which are shallowly – moderately dipping to the west or south-west. Follow up mapping, rock-chip sampling and soil surveys are required to identify the best prospects. Of the areas visited during this review, the Moondyne – Swallow area stands out as having good potential over an area of approximately 650 m north south x 500 m east-west.

6. Recommendations



At the Yambla JV I recommend:

- That the Yambla prospect be considered a high risk target given the short dimensions of the mineralised shoot at surface. It is possible that the mineralised shoot plunges gently to the SW and so the best mineralisation may not have been intersected in the PNC drill holes. That the shoot could be missed by the previous drilling highlights the short dimensions.
- That if Yambla prospect is further drill tested the drill holes should be drilled -60° towards the NE and a large sample should be taken (RC drilling using a large diameter bit). Wide diameter drill holes and large samples are required to overcome the inherent physical nugget. I recommend that a sample of at least 10 kilograms would need to be split out on site and the entire sample crushed in the lab to achieve a representative result.
- No further work should be done at Bonnie prospect at this stage.
- That further mapping at 1:5,000 scale and soil sampling be undertaken at Moondyne – Swallow prospect (area of approx 650 x 500m) to determine the scale of the anomalous mineralisation present and the relationship to retrograde shear zones and rock types (including the late dykes and pegmatite).