

# **December 2014 Quarter Activities Report**

#### ABOUT ARC EXPLORATION LIMITED

Arc Exploration Limited (ASX Code: ARX) is an Australian listed gold company focused on exploration in Indonesia and Australia.

The Company has a joint venture interest with PT Sumber Mineral Nusantara on the Trenggalek Project in East Java. This project lies on the Sunda-Banda magmatic arc and is prospective for highgrade epithermal gold-silver veins and porphyry copper-gold systems.

The Company also has interests in Australia. It exercised its Options to Farmin to two gold properties in New South Wales, Junee and Oberon and holds an Option to Farm-in to another gold property in the Mount Garnet district of Far North Queensland.

All three projects in Australia contain drilldelineated gold resources with potential for expansion through further exploration.

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### **INDONESIA**

#### Trenggalek Project, East Java

- The process of Anglo American exiting from the Trenggalek Project was completed during the quarter; ARX retains 95% and our local partner 5% of this project.
- Anglo American has fully funded over US\$3.5m of exploration expenditure at Trenggalek, adding substantially to the database and setting a platform for future exploration.
- Further ground exploration by ARX is in progress and focusing on potential gold and copper targets.

## **AUSTRALIA**

#### Junee Project, NSW

 Initial field checking and assessment in progress on potential drill targets highlighted from earlier geophysical modelling and analysis.

#### Oberon Project, NSW

 Modelling and targeting analysis of historic geophysical data over the Native Dog gold-copper prospect in progress.

# Mount Garnet Project, Queensland

- Anomalous base metal geochemistry highlighted in soil samples taken over two potential zinc targets.
- Similarities with historic soil results reported from the nearby Mount Garnet high-grade zinc skarn deposit.
- Additional ground work in progress, including mapping and rock chip sampling to better define the anomalies.

#### **INDONESIA**

ARX is exploring for gold and base metal deposits along Indonesia's highly prospective magmatic arcs and associated geological terranes (Figure 1). The primary exploration targets are porphyry-related copper-gold and high-grade epithermal gold-silver veins.



Figure 1. ARX project & major porphyry Cu-Au deposits in Indonesia

## Trenggalek Project, East Java (95% ARX)

ARX has a 95% interest through a joint venture with PT. Sumber Mineral Nusantara ("SMN"), an Indonesian company which holds the Trenggalek Exploration IUP tenement that covers an area of approximately 300 km² in the Southern Mountains of East Java.

Anglo American entered into an agreement with ARX and SMN to farm-in to the Trenggalek Project in late 2012 and explore for porphyry copper-gold targets. Potential for major porphyry copper-gold deposits in the region was highlighted by the discovery of the Tumpangpitu deposit in the Tujuh Bukit district, located some 200 km to the east of Trenggalek. Tumpangpitu is in the same belt of rocks hosting the giant Batu Hijau and Elang copper-gold deposits on Sumbawa within the Sunda-Banda magmatic arc. Trenggalek contains a similar package of rocks to those hosting these three major porphyry deposits.

Anglo American previously advised ARX and SMN of its intention to withdraw from the project due to a global rearrangement of their exploration priorities (see ASX announcement of 9<sup>th</sup> September 2014). The process of Anglo American exiting from the project was completed during the quarter. Ownership of the Trenggalek Project remains at ARX 95% and SMN 5% (see ASX announcement of 9<sup>th</sup> December 2014).

Anglo American has fully funded approximately US\$3.5 million of exploration expenditure at Trenggalek since late 2012. The work completed under the Joint Venture is summarised below.

- A high-resolution airborne magnetics-radiometrics survey and targeting over the entire IUP tenement area.
- Structural interpretation of geophysical data over the entire Trenggalek Project.
- 3D magnetics inversion modelling of selected targets: Sumber Bening and the Buluroto block.
- A 3D Induced Polarisation Resistivity ground survey and inversion modelling over the Sumber Bening.
- Grid soil geochemical surveys over selected targets: Sumber Bening and Buluroto block (~4,500 samples).
- 2,563 metres diamond drilling completed in 5 holes at Jerambah and Singgahan prospects.
- Petrographic evaluation of drill cores from Jerambah and Singgahan
- Spectral Analysis on over 4,000 rock samples taken from various prospects.

The partnership with Anglo American has provided the first opportunity to test the porphyry potential of the Trenggalek IUP and their contribution has significantly expanded the project database, providing a solid platform on which to plan future exploration.

The Company firmly believes that the Trenggalek Project has significant porphyry potential and is substantially underexplored. Multiple targets remain to be tested within the tenement area, including the large high-sulphidation alteration system identified at Sumber Bening on the western side of the IUP. This alteration system, and others like it within the tenement area, may overlie significantly mineralised porphyry system at depth. ARX is now conducting field mapping and modelling to generate additional drill targets.

The initial phase of scout drilling completed at Jerambah and Singgahan prospects earlier this year confirmed the presence of porphyry systems at both prospects (See ARX March 2014, June 2014 & September 2014 Quarterly Activities Reports).

The Company firmly believes that the Trenggalek Project still has significant copper and gold potential and is substantially underexplored. Multiple targets remain to be tested within the project area, including the large high-sulphidation alteration system identified at Sumber Bening on the western side of the IUP (See ARX September 2013 Quarterly Activities Report), and other potential porphyry targets highlighted from a 2D interpretation of the airborne magnetics and radiometrics (Figure 2) (See ARX March 2013 Quarterly Activities Report).

ARX is now conducting further field mapping and prospecting to evaluate the potential new porphyry targets and is re-evaluating some of the original epithermal gold prospects for previously untested potential.

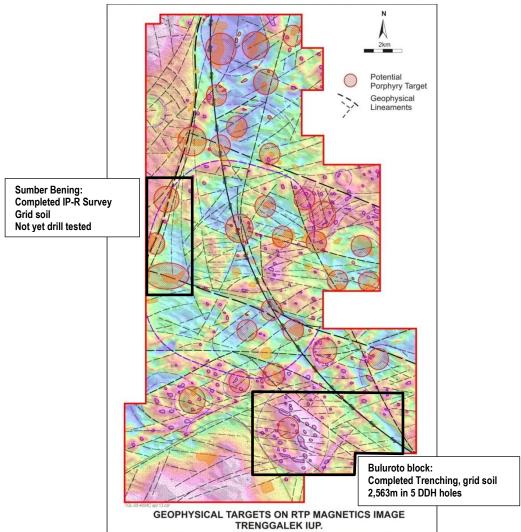


Figure 2. Trenggalek IUP - Geophysical Targets

Early exploration work carried out by ARX, prior to the Anglo American JV, concentrated on testing of intermediate-sulphidation epithermal gold-bearing veins, breccias, jasperoid and high-grade float targets at multiple prospects identified within the IUP (Figure 3). These gold targets are hosted by Oligo-Miocene age

volcanic and volcaniclastic rocks, limestone, subvolcanic plugs and possible diatreme breccias. Several of the prospects have had limited drill testing and produced some significant gold-silver intercepts including 9 m at 4.5 g/t Au & 8 g/t Ag at Sentul, 13.7 m at 3.2 g/t Au & 60 g/t Ag at Buluroto, and 6.6 m at 4.9 g/t Au & 149 g/t Ag at Kojan. High-grade gold-vein float occurrences identified at the Jati and Jombok have yet to be traced to source and remain a valid exploration target.

The discovery of a high-sulphidation epithermal alteration system at Sumber Bening in late 2011, and other similar alteration systems since, supported the potential for deeper porphyry gold-copper targets within the Trenggalek IUP.

Initial drilling of targets identified at Jerambah and Singgahan prospects with Anglo American in 2014 confirmed the occurrence of porphyry-style veining and alteration associated with multiple diorite-quartz diorite-tonalite intrusions and diatreme breccias. The large alteration systems defining these prospects and at other potential porphyry target areas identified within the IUP are open and remain to be explored.

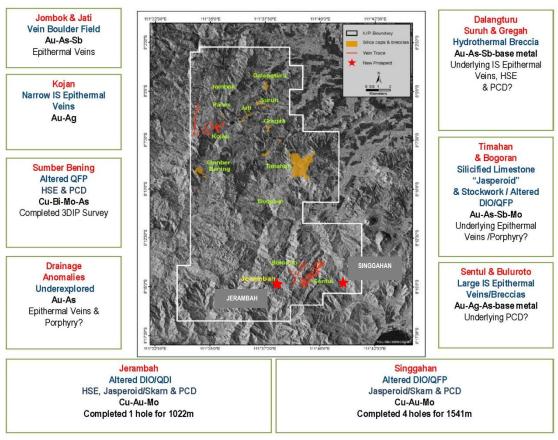


Figure 3. Trenggalek IUP - Major Prospects

Exploration expenditure at Trenggalek for the quarter totalled US\$138,342. This was wholly funded by Anglo American.

## <u>AUSTRALIA</u>

ARX holds agreements with New South Resources Pty Ltd ("NSR") to farm-in to their Junee and Oberon projects located in New South Wales (see ASX announcements of 3<sup>rd</sup> July 2013 and 30<sup>th</sup> June 2014). These two projects occur within the Lachlan Orogen, a complex geological province endowed with world-class gold and gold-copper deposits.

ARX also holds an option to farm-in to a gold property owned by Snowmist Pty Ltd ("Snowmist") located in the Mount Garnet mining district of Far North Queensland. This option period extends until August 2015.

The company conducted field work on the Mount Garnet project during the quarter.

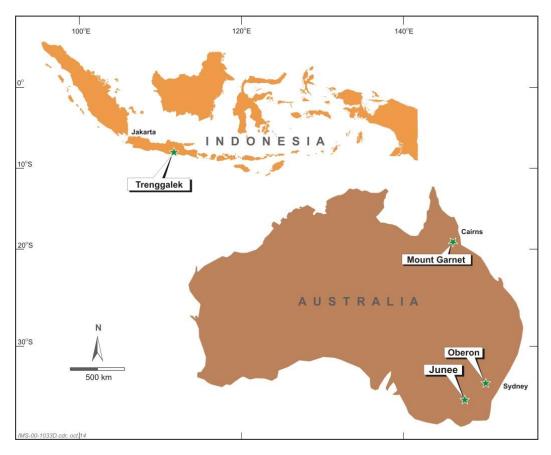


Figure 4. Australian Project Locations

# Junee Project, NSW (100% NSR; ARX earning up to 80%)

The **Junee Project** is located close to existing mine operations and development infrastructure and near the major regional centre of Wagga Wagga. It comprises four Exploration Licences (EL's 6516, 6658, 6768 & 8152). The total area of this tenement package is about 87 square-kilometres (Figure 5).

The tenements straddle the major regional Gilmore Fault Zone and cover rocks of the Junee-Narromine Volcanic Belt, part of the highly prospective Ordovician-Early Silurian Macquarie Volcanic Arc in the Lachlan Orogen. Large porphyry-related gold and gold-copper deposits (E.g. Northparkes, Gidginbung and Cowal) occur along this fertile volcanic belt and their distribution is believed to be spatially related to the Gilmore Fault Zone and its associated fault splays.

EL 6516 contains the 77,000-ounce *Dobroyde* gold deposit (see ASX announcements of 3<sup>rd</sup> and 10<sup>th</sup> July 2013) on which historic drilling has produced some spectacular high-grade gold intercepts within a low-grade mineralisation envelope, including 22m at 37.3 g/t gold, 16m at 10.5 g/t gold and 6m at 18.2 g/t gold (see ASX announcements of 9<sup>th</sup> October 2013).

#### **Work Completed**

Potential drill targets were generated in the previous quarter from a three-dimensional ("3D") geophysical inversion modelling and targeting analysis of historic airborne magnetic/radiometrics and ground IP/Resistivity data collected over the Dobroyde gold deposit and surrounding area (see ASX announcements of 24<sup>th</sup> September 2014).

The target areas were investigated by initial field checking during this quarter and found to be largely covered by transported regolith (i.e. ancient alluvial deposits) that masks the source of the anomalous geophysical responses surrounding the Dobroyde gold deposit.

Results from geophysical modelling reported in the previous quarter remain encouraging. They confirm the occurrence of extensive chargeability and resistivity anomalies sourced from the intense silica-clay-sulphide

alteration footprint that is associated with the Dobroyde gold deposit and support that the gold-bearing alteration system and its controlling structures are open down a moderate plunge to the northwest of Dobroyde. This target has only been partly tested by historic drilling to a shallow vertical depth of about 200m. There is potential for additional gold resources and possibly more high-grade shoots located below and to the north of the currently defined Dobroyde gold resource.

The results of the geophysical modelling and analysis also highlight magnetic responses and associated chargeability and resistivity anomalies that may indicate the presence of a buried porphyry copper-gold system to the northwest of Dobroyde.

Dobroyde is located about 50 km south of Gidginbung, another high-sulphidation epithermal gold deposit located adjacent to the Gilmore Fault Zone and in a similar package of volcanic rocks. The Gidginbung deposit was mined in the 1990's by Paragon Resources and subsequent exploration surrounding the mine has produced several porphyry copper-gold prospects beneath younger cover rocks (E.g. The Dam, Culingerai, Yiddah). No previous exploration for porphyry copper-gold has been undertaken at Dobroyde and the chances for a porphyry discovery are considered to be high.

Drilling is planned to test the geophysical targets, pending sufficient funding, in the first or second quarter of 2015.

ARX expenditure on the Junee Project for the quarter totalled A\$22,091.

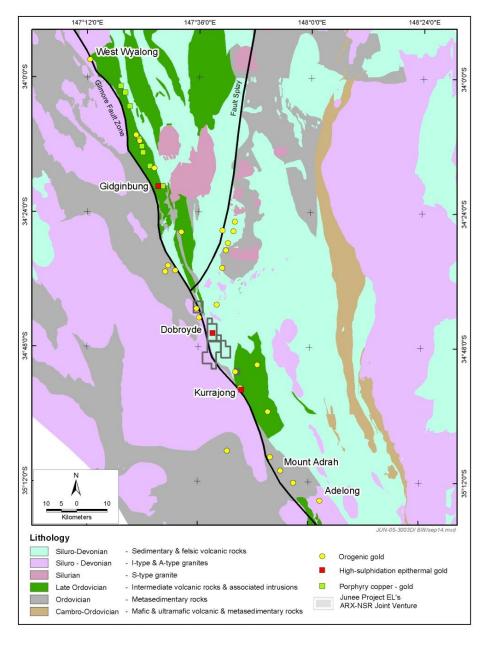


Figure 5. Junee Project – Regional Geology & Gold-Copper Occurrences

## Oberon Project, NSW (100% NSR, ARX earning up to 80%)

The **Oberon Project** is located close to existing mine operations and development infrastructure near the major regional centre of Bathurst. It comprises one large licence EL 6525 and a smaller adjoining licence EL 8110. The total area of this tenement package is approximately 171 square-kilometres (Figure 6).

The project area covers Siluro-Devonian and Ordovician volcanic rocks of the Hill End Trough and the Macquarie Volcanic Arc and is located on the eastern side of the Lachlan Orogen. The Siluro-Devonian volcano-sedimentary rocks in this region are host to VMS-related gold-base metal (McPhillamys, Lewis Ponds) and orogenic gold-vein (Hill End, Lucknow) deposits. Ordovician volcanic rocks within the project area are of a similar age and composition to those hosting the multiple gold-copper porphyry and gold-copper skarn deposits found in the nearby Cadia district. The Oberon Project area is therefore prospective for similar styles of mineralisation. Carboniferous granites intrude both of the older rock sequences and the edges of these intrusions are prospective for gold skarn deposits (Lucky Draw, Browns Creek).

EL 6525 contains the 150,000-ounce *Murphys* gold deposit (see ASX announcements of 3<sup>rd</sup> and 10<sup>th</sup> July 2013) from historic drilling which has produced some broad low-grade gold intercepts including 49m at 0.75 g/t gold, 23m at 1.05 g/t gold and 34m at 0.62 g/t gold.

A geophysical consultant was commissioned to undertake a review of historic geophysical data collected over the Native Dog Prospect located at the southern end of EL 6525 during the quarter. This includes three-dimensional ("3D") geophysical inversion modelling and a targeting analysis on magnetic/radiometric and gravity data collected from a high-resolution airborne survey flown by Fugro in 2007 and on IP/Resistivity data from a ground survey done by Planetary Geophysics in 2009. The work is in progress and results will be reported in the next quarter.

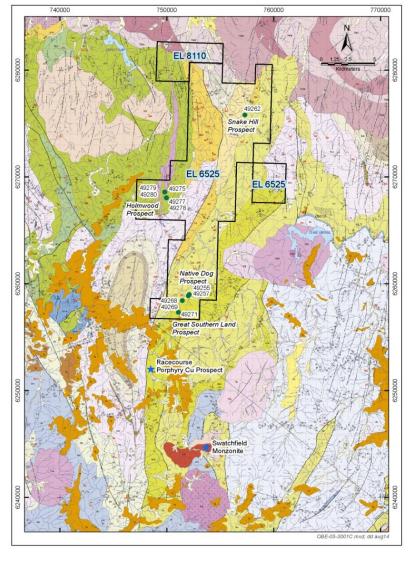


Figure 6. Oberon Project – Tenement & Surface Rock Sample Locations

Native Dog Prospect is underlain by mafic-ultramafic volcano-sedimentary rocks of the Late Ordovician Rockley Volcanics. Previous surface sampling at this prospect returned gold and copper results ranging 0.1 to 4.07 g/t Au and 0.1 to 0.23% Cu from eleven of sixteen rock samples (see ASX announcement of 21st May 2014). The same package of rocks is host to the Racecourse porphyry copper prospect located about 5 km south of Native Dog (Figure 6). Racecourse is located within a separate tenement that is held by Lachlan Star Limited.

ARX expenditure on the Oberon Project for the quarter totalled A\$45,565.

# Mount Garnet Project, Queensland (100% Snowmist, ARX has option to earn in)

The **Mount Garnet** Project, located near the major regional centre of Cairns, comprises three Mining Leases (ML's 4363, 4390, 20018) covering about 150 hectares that are 100% held by Snowmist Pty Ltd ("Snowmist"), and an exploration tenement (EPM 25343) covering about 17 km² that is held by Arc Exploration Limited ("ARX") (Figure 7).

The project area lies at the southern end of a discontinuous belt of Siluro-Devonian calcareous metasedimentary rocks (Chillagoe Formation) that is bounded by the major regional Palmerville fault and intruded by Permo-Carboniferous granites that are associated with the occurrence of high-grade gold-base metal-tin skarn and disseminated gold-base metal-tin stockwork/breccia deposits in the region (Eg. Red Dome, Mungana and King Vol in the Chillagoe district; Mount Garnet, Gillian and Triple Crown in the Mount Garnet district).

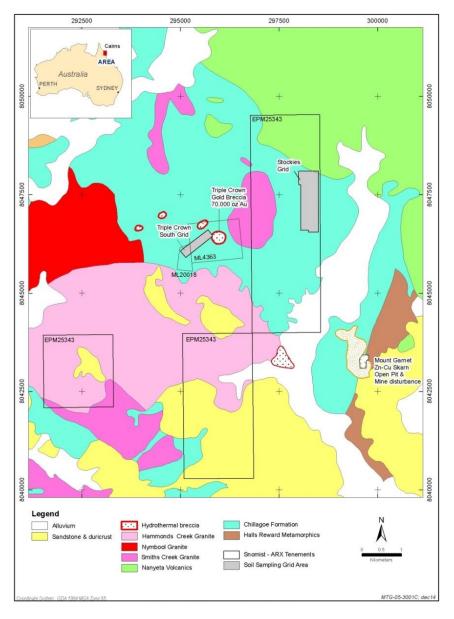


Figure 7. Mount Garnet Project - Tenements & Soil Grids

ML 4390 held by Snowmist contains the 69,000-ounce *Triple Crown* gold deposit (see ASX announcement of 21st August 2013) on which historic drilling has produced some broad low-grade gold intercepts including 22m at 2.33 g/t gold, 51m at 1.73 g/t gold and 35m at 1.39 g/t gold.

#### **Work Completed**

Soil sampling was conducted over two historic mineral prospects during the quarter, Triple Crown South and Stockies. These prospects were originally identified by AOG Minerals in the 1980's. The Triple Crown South soil grid is located within ML 4363 and ML 20018 about 1 km to the immediate west of the 69,000 oz Triple Crown gold deposit and is underlain by northeast-striking gossanous calc-silicate rocks that might be mineralized skarn. The Stockies soil grid is located within EPM 25343 about 1.5 km east of Triple Crown and is underlain by gossanous, brecciated metasedimentary rocks that could indicate the presence of a mineralized skarn and granite at depth. Both prospects are located close to the old Mount Garnet zinc-copper mine.

The contoured soil results presented in Figures 8(a) and 8(b) highlight large areas (>500 m length) of anomalous base metal geochemistry across both grids. The anomalies are defined by >75 ppm copper, >200 ppm lead, 75 ppm zinc at Stockies and >50 ppm copper, >100 ppm lead, >250 ppm zinc at Triple Crown South. Maximum soil results obtained on both grids were 314 ppm Cu, 3180 ppm Pb, 440 ppm Zn at Stockies and 237 ppm Cu, 1310 ppm Pb, 3290 ppm Zn at Triple Crown South.

These results compare favourably with the size and tenor of zinc, lead and copper anomalies reported from historic fine-fraction soil sampling over the Mount Garnet zinc-copper skarn deposit (Hartley & Williamson, 1995), which is located about 3 km south of Stockies and 4.5 km southeast of Triple Crown South. The Mount Garnet skarn deposit had a zinc-copper resource of about 2 Mt at 9% Zn & 0.5% Cu prior to mining (Figure 9).

Follow-up work at Triple Crown South and Stockies is in progress and includes geological mapping and rock chip sampling to provide further definition of the soil geochemical anomalies.

ARX expenditure on the Mount Garnet Project for the guarter totalled A\$49,975.

This report is dated 27 January 2015.

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The information in this announcement that relates to Exploration Results is based on information compiled by Mr Brad Wake, BSc(Applied Geology), who is a member of the Australian Institute of Geoscientists. Mr Wake has sufficient experience that is relevant to the styles of mineralisation and types of deposit under consideration and to the activity which is being undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.' Mr Wake is a full time employee of Arc Exploration Limited and consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the *Dobroyde* and *Murphys* gold resources is extracted from the report entitled Junee and Oberon Projects - Statement of Resources created and released to the ASX on 10 July 2013.

The information in this report that relates to the *Triple Crown* gold resource is extracted from the report entitled Mount Garnet Project - Statement of Resources created and released to the ASX on 21 August 2013.

The reports referred to above are available to view on the Company's website: <a href="www.arcexploration.com.au">www.arcexploration.com.au</a> The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Figure 8(a). STOCKIES PROSPECT – Contoured Soil Geochemical Results

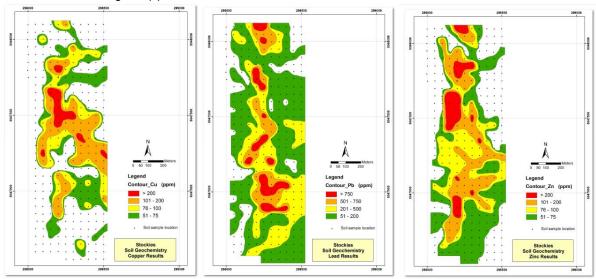


Figure 8(b). TRIPLE CROWN SOUTH PROSPECT - Contoured Soil Geochemical Results

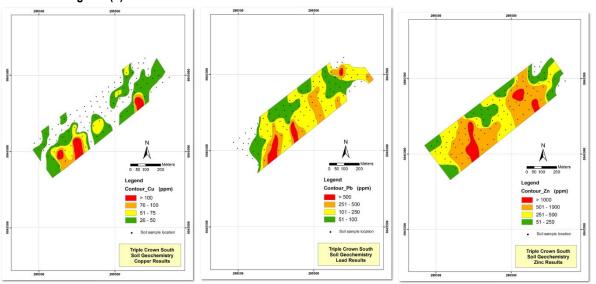


Figure 9. MOUNT GARNET ZINC SKARN DEPOSIT - Historic Soil Results (Hartley & Williamson, 1995)

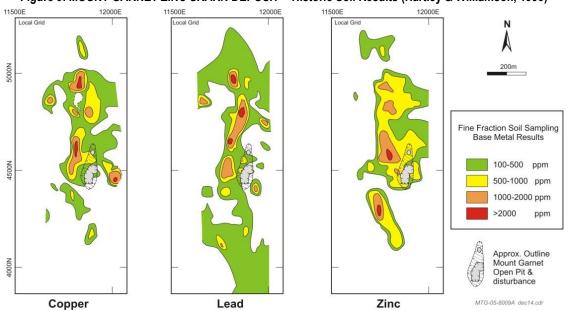


Table 1. Details of Tenements & ARX Interest

Project	Location	Tenement	Area (km²)	ARX Interest
Trenggalek	East Java, INDONESIA	Exploration IUP	$300~\mathrm{km}^2$	95%
Oberon	New South Wales, AUSTRALIA	EL 6525 EL 8110	160 km <sup>2</sup> 11 km <sup>2</sup>	Farm-in Farm-in
Junee	New South Wales, AUSTRALIA	EL 6516 EL 6658 EL 6768 EL 8152	17 km <sup>2</sup> 14 km <sup>2</sup> 20 km <sup>2</sup> 36 km <sup>2</sup>	Farm-in Farm-in Farm-in 100%
Mount Garnet	Queensland, AUSTRALIA	ML 4363 ML 20018 ML 4390 EPM 25343	129 ha 21 ha 1 ha 17 km²	Under Option Under Option Under Option 100%