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CENTRAL EYRE IRON PROJECT & GAWLER IRON PROJECT

Major Breakthrough in Understanding the Geological Evolution of Iron Bearing Rocks of the Eyre Peninsula

Iron Road Limited (Iron Road, ASX: IRD) is pleased to provide an update of the co-sponsored University of Adelaide PhD Applied Research Project entitled *Influence of Crustal Architecture and Tectonic Reworking on the Warramboo Magnetite Gneiss Iron Ore Deposit, Southern Gawler Craton*.

Highlights

- Identification of a previously unknown cover–basement relationship at Warramboo, signifying a major unconformity.
- Correlation of the Warramboo magnetite gneiss with other iron bearing rocks on the Eyre Peninsula and with metasediments in eastern Antarctica.
- New age constraints on the timing of deformation, metamorphism and mineralisation at Warramboo.
- Insights into the ore formation process of the world-class Warramboo magnetite orebody.
- This research project and future works is expected to assist Iron Road in the generation of targets for new deposits and extensions to known deposits.

Project Background

Crustal deformation in the southern Gawler Craton has juxtaposed layers of rock of different apparent age, geochemistry and economic potential. The nature of the deformational processes and the stratigraphy and geochemistry of these layers remains unknown, particularly in the central-western Eyre Peninsula in the vicinity of Warramboo. This PhD project investigates the geology, tectonics and exploration potential of the Eyre Peninsula by examining the stratigraphy and mineralogy of the Warramboo magnetite gneiss deposit and host rocks in the region.

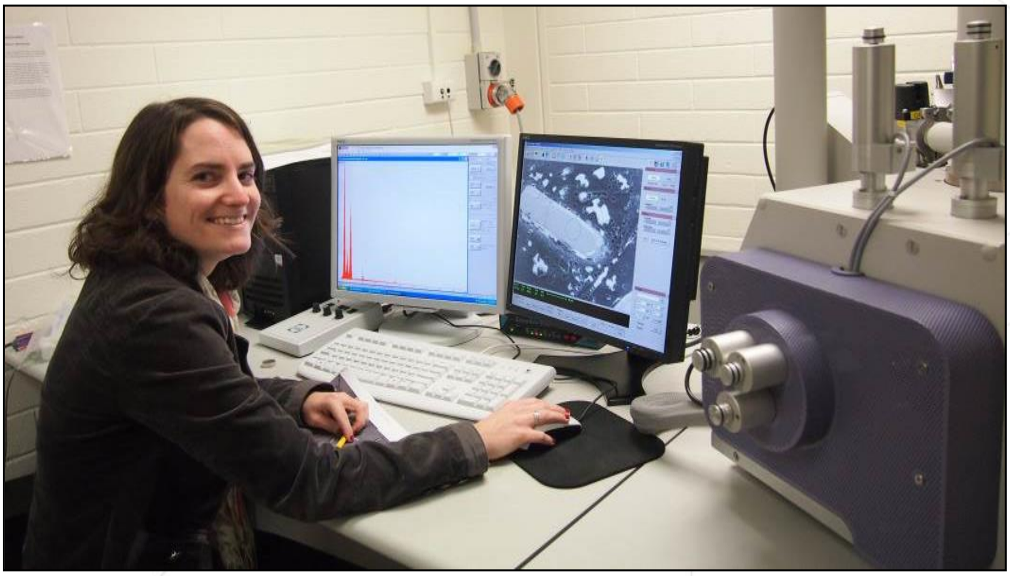

Figure 1

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Project Benefits

The collaborative PhD project, between Iron Road Limited and the University of Adelaide in partnership with the Geological Survey of South Australia, DMITRE, has several potential benefits.

Iron Road Limited, together with the mineral resources industry, will gain valuable insight into the genesis of this unique world-class magnetite orebody and the geological processes that determined its evolution through time.

Moreover, Kathleen Lane is developing into a critically thinking geoscientist, gaining valuable skills that are directly applicable to the South Australian resource industry. The University of Adelaide through TRaX, as well as the Geological Survey of South Australia (DMITRE), will fulfil their roles in education and scientific research of a highly prospective though poorly understood geological region in South Australia.

Geochronology

Prior to this study and in the absence of data indicating otherwise, the magnetite gneiss at Warramboo was generally assumed to be an iron-rich component of the Sleaford Complex and thus of the same age, ca. 2500Ma (approximately 2,500 million years old) (Figure 2).

Based on relict-rounded detrital zircon grains and whole rock compositions, Pontifex (2000) suggested that the Warramboo magnetite gneiss may represent metamorphosed clastic sediment. In the absence of any geochronology (dating data) and having only limited RC drilling information available, the exact age and structural relationship of the magnetite gneiss at Warramboo with the enveloping barren country rock (also gneiss), could not be determined with any degree of certainty.

Zircon uranium-lead geochronology of the country rock or enveloping ‘barren’ gneiss at Warramboo, established during the course of this PhD study, indicates that sedimentary precursors to the gneiss formation were deposited ca. 2480-2470Ma with coeval igneous intrusions, consistent with the Sleaford Complex basement rocks of the Eyre Peninsula (Figure 3).

However, substantially younger zircon populations were identified within the Warramboo magnetite gneiss, with ages ca. 1900-1750Ma (Figure 4). This represents a 730Ma difference in geological age between the Warramboo magnetite gneiss and enveloping ‘barren’ gneiss surrounds.

Such age disparity is significant and interpreted as a cover-basement relationship where the magnetite gneiss footwall and hangingwall contacts define a highly-deformed, major unconformity.

It is now likely that the magnetite gneiss at Warramboo correlates with the ca. 1750Ma ferruginous Price Metasediments, comprising iron-rich phyllite exposed along the south-western edge of the southern Eyre Peninsula (Figure 5).

Further work is underway to confirm the basement-cover relationship identified by the geochronology and to ascertain the nature of the unconformity. These are often zones of alteration and fluid movement associated with ore mineralisation. Identifying the geochemical signature of the unconformity would also define stratigraphy and the development of more precise exploration models.

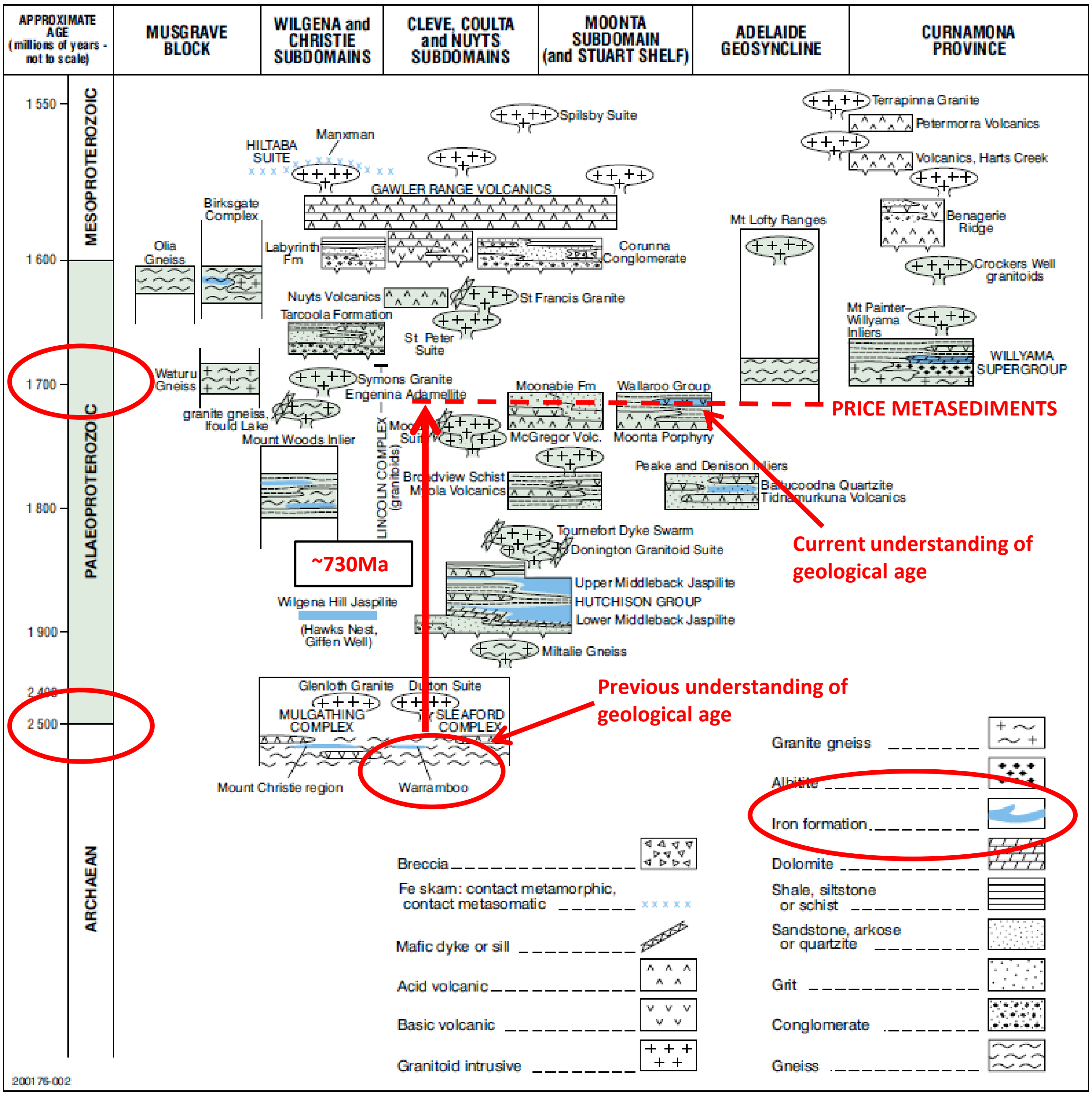


Figure 2 – Stratigraphic correlations of Archaean to Mesoproterozoic iron-rich rocks in South Australia. Red highlights the possible placement of the Warramboo Magnetite Gneiss within the stratigraphic column *(from Iron Ore in South Australia, Commodity Review 8, PIRSA (2000))*.

Figure 3

Detrital zircon ages from Warramboo magnetite-barren gneiss (country rock).

Sedimentary precursor was deposited at ca. 2479Ma and deformed shortly afterwards at 2450-2400 Ma.

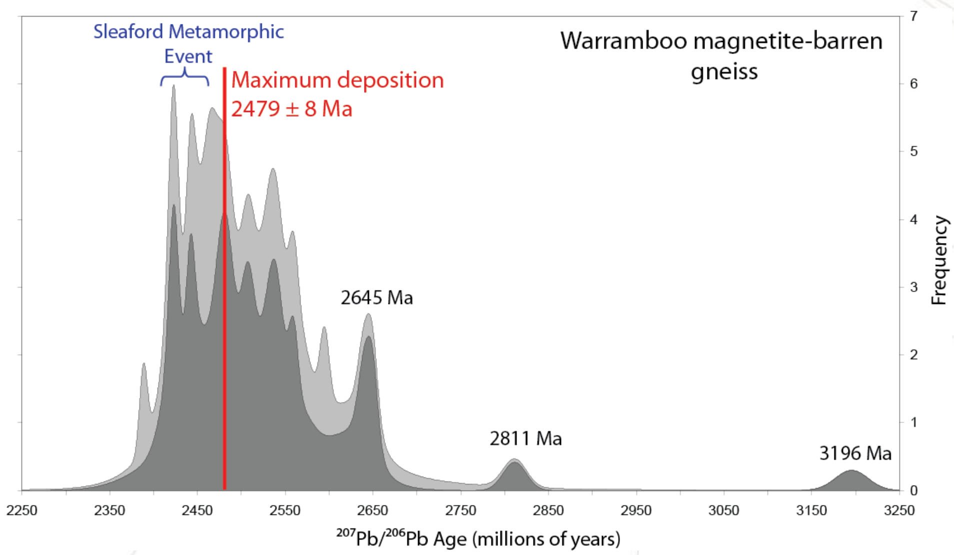
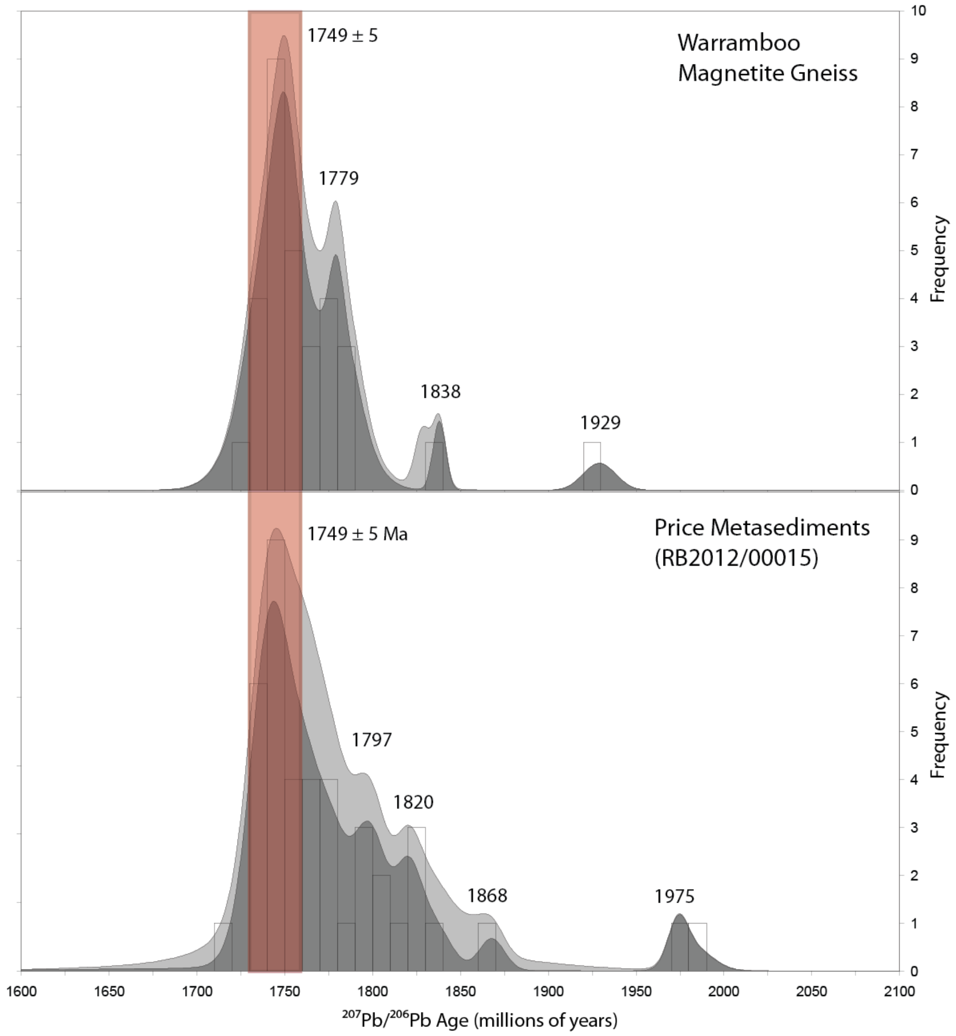


Figure 4

Detrital zircon ages from the Warramboo magnetite gneiss and the iron-bearing *Price Metasediments*, highlighting the similar maximum age of deposition.



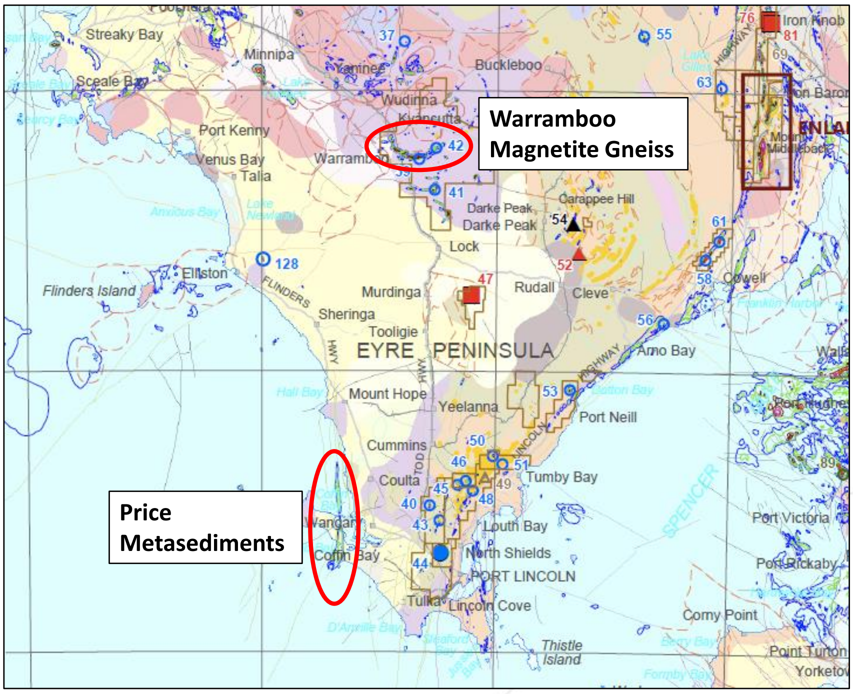


Figure 5

Location of the Warramboo magnetite gneiss and *Price Metasediments* on the Eyre Peninsula, South Australia (extracted from Iron Ore Occurrences South Australia, PIRSA (2006)).

Monazite-based uranium-lead geochronology data from Warramboo show that the rocks underwent deformation and metamorphism during the ca. 1735-1700Ma Kimban Orogeny, indicating that the development of the magnetite gneiss mineralogy at Warramboo occurred during this time. The formation of the magnetite mineralisation at Warramboo is proposed to have occurred through in-situ concentration of iron minerals during melting and melt loss within the magnetite bearing gneiss associated with high-temperature metamorphism (Figure 6). In this process 'gangue' minerals were concentrated into migrating silicate melts, leaving behind the iron-rich magnetite gneiss orebody.

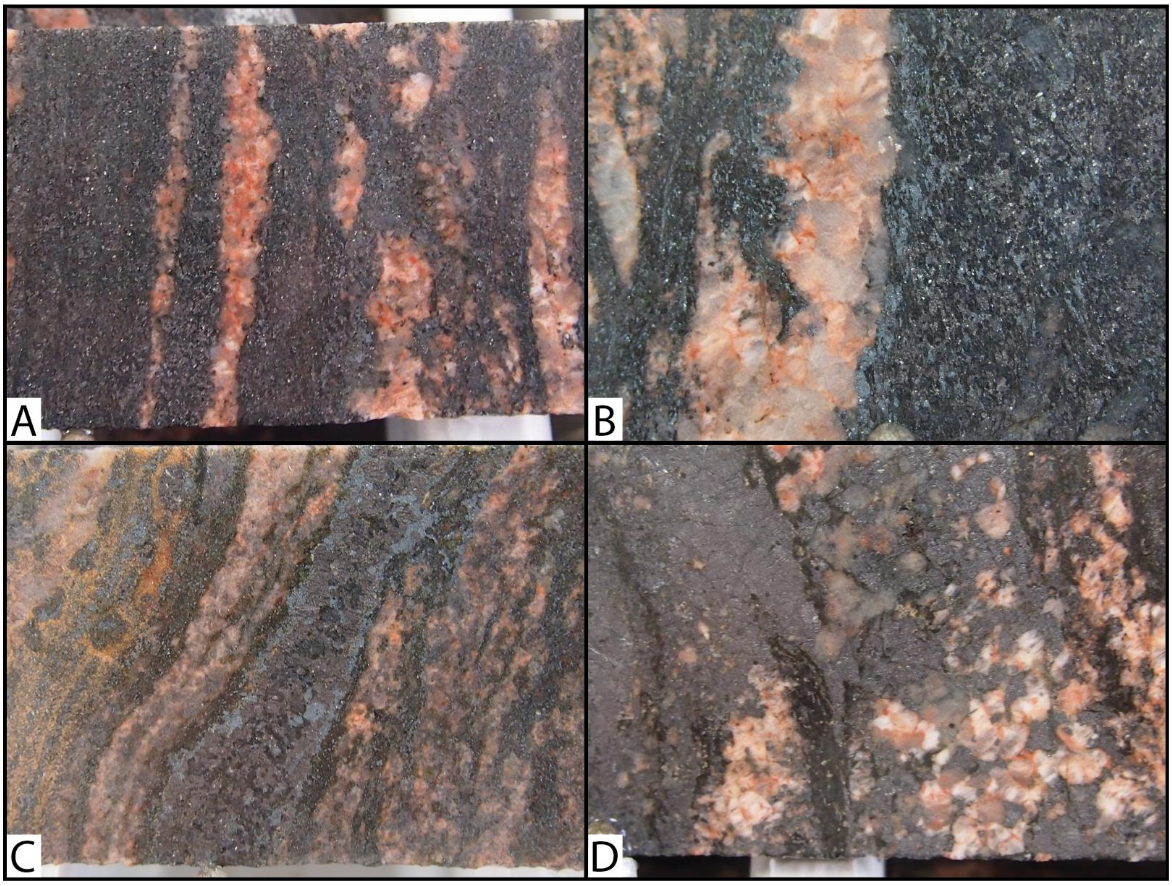


Figure 6 Half NQ2 diamond core from Warramboo showing:
A: Magnetite gneiss;
B: Magnetite-hematite gneiss;
C: Magnetite and hematite formation during metamorphism;
D: Very coarse magnetite crystals adjacent to melt vein.

Price Metasediments and their Relationship with Antarctica

The Price Metasediments occur as a narrow band of ferruginous clastic sediments along the western edge of the lower Eyre Peninsula close to Coffin Bay (Figure 5). The magnetic response of this sedimentary sequence is attributed to contained magnetite and the rocks are phyllitic as a result of low grade metamorphism. Compositional layering within the Price metasediments, defined by variations in quartz content, possibly defines the original sedimentary layering.

Oliver & Fanning (1997) presented petrological and isotopic evidence that the sedimentary precursor to a low grade phyllite from Cape Hunter, George V Land, Antarctica was deposited during the Palaeoproterozoic and is correlated with similar rock types on the southern Eyre Peninsula, South Australia (Figure 7).

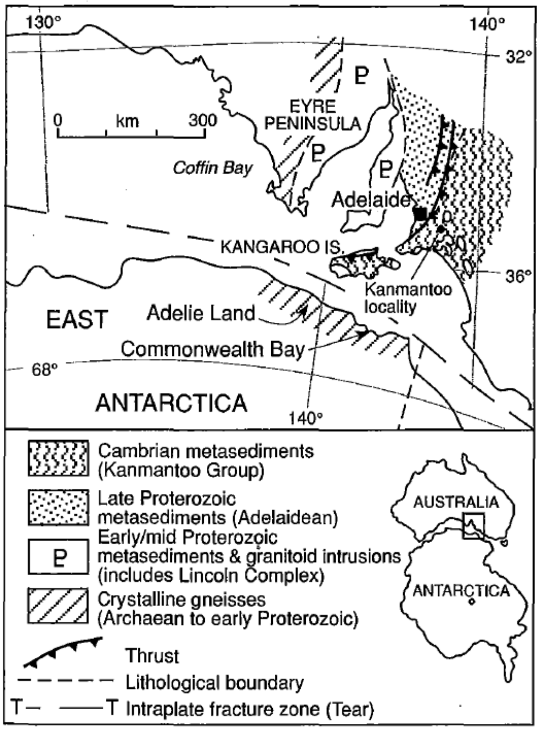


Figure 7

Reconstruction of southern South Australia and adjacent Antarctica, showing the generalised regional geology and the location of Cape Hunter (west of Commonwealth Bay), Antarctica and Coffin Bay, southern Eyre Peninsula (from Oliver & Fanning, 1997).

SHRIMP U-Pb zircon analyses from samples either side of the Southern Ocean are considered by Oliver & Fanning (1997) to support a lithological correlation of the phyllite at Cape Hunter, Antarctica and the outcropping unit on Price Island, South Australia. Garnet analyses are almost identical and support the lithological similarity to the comparable metamorphism. Oliver & Fanning (1997) believe that Cape Hunter is likely to have been joined to the extension of the magnetic anomaly trending south from Coffin Bay Peninsula through Price Island, during Gondwana time.

The current PhD work by Ms Kathleen Lane establishes a link with the Warramboo magnetite gneiss and the Price Metasediments and possibly with the Cape Hunter phyllites. Interestingly a grade of 16.8% Fe_2O_3 is reported from a sample taken on Price Island, similar to the average iron content of the Warramboo magnetite gneiss.

Future Work

Modelling of the metamorphic conditions and ore formation process at Warramboo will be undertaken in order to develop a predictive exploration model with a mine scale resolution along strike and down dip and in a regional context. The geochronology and stratigraphic relationship of the Mount Christie banded ironstones at the Gawler Iron Project will also be assessed as these rocks have previously been linked with the Warramboo magnetite gneiss and by inference correlated with a 'Sleaford' age of approximately 2500Ma.

This collaborative project is expected to raise the profile of South Australian geology generally and the unique world-class Warramboo magnetite resource along with generating significant interest within the scientific community.

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Iron Road's principal project is the Central Eyre Iron Project (CEIP) in South Australia. The wholly owned CEIP is a collection of three iron occurrences (Warramboo, Kopi & Hambidge) with an exploration potential of 2.8-5.7 billion tonnes of magnetite gneiss at a grade of 18-25 % iron*.

A prefeasibility study has demonstrated the viability of a mining and beneficiation operation initially producing 12.4Mtpa of premium iron concentrate for export. A definitive feasibility study is currently assessing production of 20Mtpa of iron concentrates

Metallurgical test work indicates that a coarse-grained, high grade, blast furnace quality concentrate may be produced at a grind size of -106µm grading 67% iron with low impurities.

** Coffey Mining (Iron Road Limited ASX announcement 01 September 2009).*

** It is common practice for a company to comment on and discuss its exploration in terms of target size, grade and type. The potential quantity and grade of an exploration target is conceptual in nature since there has been insufficient work completed to define the prospects as anything beyond exploration target. It is uncertain if further exploration will result in the determination of a Mineral Resource, in cases other than the Boo-Loo, Dolphin and Murphy South/Rob Roy prospect.*

The information in this report that relates to global exploration targets at the Central Eyre Iron Project is based on and accurately reflects information compiled by Mr Albert Thamm, Coffey Mining, who is a consultant and advisor to Iron Road Limited and a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Thamm has sufficient experience relevant to the style of mineralisation and the type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Coffey consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.