



Australian Government
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GEOLOGICAL REVIEW OF THE SOUTHERN CURNAMONA REGION

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CRC LEME OPEN FILE REPORT 183

January 2006

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CRC LEME is an unincorporated joint venture between CSIRO-Exploration & Mining, and Land & Water, The Australian National University, Curtin University of Technology, University of Adelaide, Geoscience Australia, Primary Industries and Resources SA, NSW Department of Primary Industries and Minerals Council of Australia.

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This report presents a brief geological overview of the southern Curnamona Region in South Australia and New South Wales. This project commenced July 2004 and was completed July 2005. A complementary document entitled “Three-dimensional model of the Callabonna Sub-Basin sequence, southern Curnamona Region” by Luisa Ruperto and Malcolm Nicoll (2006) is recommended to be read in conjunction with this report.

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Cataloguing-in-Publication:

Ruperto, L.

Geological review of the southern Curnamona Region

ISBN 1 921039 18 3

1. Geology – South Australia/New South Wales

2. Regolith – South Australia/New South Wales

I. Ruperto, L.

CRC LEME Open File Report 183.

ISSN 1328-4768

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2006

ABSTRACT

This report reviews the subsurface geology of the southern Curnamona region, as background information to the associated 3D model of the Cainozoic Callabonna Sub-basin.

The geological setting of this region incorporates multiple basins with complex inter-relationships across the region. Proterozoic basement units are assigned to the Willyama Supergroup, including the Benagerie Ridge basement high. The overlying Arrowie Basin records a significant period of deformation when the Benagerie Ridge served as a structural divide between the Moorowie and Yalkalpo synclinal depocentres during the Late Cambrian. The Mesozoic Eromanga Basin sediments are distinguished based on their spatial relationship to the Denison-Willouran Divide. This predominantly marine succession is overlain by Tertiary Lake Eyre Basin units comprising the Eyre and Namba Formations. These comprise an alternating sequence of lacustrine and fluvial sediments with depositional environments dominated by river channels and/or a lack of major structural relief. Significant drying of the environment during the Quaternary has led to the development of sequences dominated by regolith materials.