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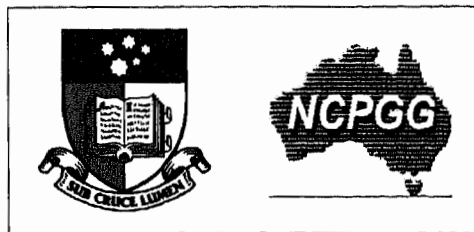


**SEDIMENTOLOGY AND SEQUENCE STRATIGRAPHY
OF THE
EARLY TRIASSIC REWAN GROUP,
BOWEN BASIN**

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This thesis is submitted as fulfillment of the requirements for the degree of
Doctor of Philosophy in Geology
at the
National Centre for Petroleum Geology and Geophysics
University of Adelaide



February 2001

ABSTRACT

The Bowen Basin was initiated during an Early Permian phase of back-arc extension associated with continental arc volcanism, and subsequently became a 'classical' foreland basin during Late Permian to Mid-Triassic times, as the palaeo-Australian and Pacific plates converged. Some of the compressive deformation associated with closure of the basin was accommodated by strike-slip motion along major fault lines. Following a Middle to Late Triassic period of uplift, erosion and local development of intermontane basins, the Surat basin was initiated in Early Jurassic times.

This study of the Early Triassic Rewan Group in the Bowen Basin was an integrated approach using seismic stratigraphic principles with outcrop, wireline log, biostratigraphy and core data. It resulted in a coherent and useable stratigraphic framework that will assist in defining facies and potential reservoirs below seismic resolution within the Rewan Group. The Rewan Group consists of two depositional sequences that are represented by the Sagittarius Sandstone and Arcadia Formation. Depositional systems of the Sagittarius Sandstone and Arcadia Formation were affected by major tectonic and climatic changes. Each formation is marked at its base and top by a third-order sequence boundary. The Sagittarius Sandstone is overall regressive and was deposited in a dominantly lacustrine environment. The basal part of the sequence is sandstone prone, while the overall sequence has a low sandstone:siltstone ratio due to the accommodation created. The base of the overlying Arcadia Formation is marked by the Brumby Sandstone Member representing the lowstand systems tract of the second depositional sequence. It was deposited in a fluvially dominated shoreface setting. Red beds of fluvial origin in the Arcadia Formation are characterised by overbank fines and lenticular channel sandstone representing the highstand systems tracts of a rapidly subsiding basin. High-frequency incised valley fills occur in the uppermost Arcadia Formation as subsidence rates slowed down. The Arcadia Formation is in turn erosively overlain by pebbly sandstone of the Clematis Group. Sandstone-filled incised valleys at the base of the Sagittarius Sandstone and in the upper Arcadia Formation, and the course-grained quartzose sandstone of the Brumby Sandstone Member offer the best reservoir potential in the Rewan Group.

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