

## CRC LEME OPEN FILE REPORT 219

### Supergene gold dispersion at the Argo and Apollo Deposits, Western Australia.

#### Preface

The principal objective of CRC LEME-AMIRA Project 504, *Supergene mobilization of gold and other elements in the Yilgarn Craton*, is to determine the mechanisms of supergene/secondary depletion, enrichment and dispersion of Au and other elements, so as to improve selection of drilling targets and further optimize interpretation of geochemical data.

Argo and Apollo are two closely adjoining Au deposits close to Lake Lefroy, in the Kambalda region. This region is similar to the Kalgoorlie area in having saline/acidic groundwaters and major influences from palaeochannel systems. However, it differs in that it is lower in the landscape, with groundwaters trending even more hypersaline than around Kalgoorlie, and with the presence of lignite within the palaeochannel sediments. The Argo deposit is overlain by up to 60 m of palaeochannel sediments, with mineralization at the unconformity between *in situ* and transported regolith and in saprolite. This allows investigation of the distribution of Au within both *in situ* and transported materials. In contrast, most of the Apollo deposit is away from the palaeochannel area, thus allowing investigation of the supergene redistribution of Au in residual regolith.

Thus, these two deposits offer an ideal area to investigate differing modes of Au redistribution in transported and *in situ* regolith in the Kambalda/Lefroy region, and this study fits well within the objectives of the Project.