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Geochemical analysis of the regolith
of Kangaroo Island: Using portable
XRF to identify geochemical
signatures to distinguish
litho-geochemical horizons and
vectors toward mineralization.

Thesis submitted in accordance with the requirements of the University of
Adelaide for an Honours Degree in Geology

William Alexander Lyon

November 2014

Geochemical analysis of the regolith and cover sequence of Kangaroo Island, SA.

GEOCHEMICAL ANALYSIS OF THE REGOLITH OF KANGAROO ISLAND: USING PORTABLE XRF TO RECOGNIZE GEOCHEMICAL SIGNATURES AND TO DISTINGUISH LITHOGEOCHEMICAL HORIZONS AND VECTORS TOWARD MINERALIZATION.

GEOCHEMICAL ANALYSIS OF THE REGOLITH AND COVER SEQUENCE OF KANGAROO ISLAND, SA.

ABSTRACT

Mineralisation overlain by extensive cover can be identified through the geochemical signature dispersed through the surrounding regolith. This project aimed to use portable XRF (pXRF) analysis to increase the understanding of the regolith geochemistry in the proximity of the Cygnet-Snelling Shear Zone (CS-SZ), Kangaroo Island. The shear zone is significant as it hosts several potentially economic deposits including the Bonaventura Copper (Cu) deposit as well as the Dewrang and Kohinoor Lead – Zinc (Pb-Zn) prospects. By using pXRF analysis at 2m intervals on drill hole transects taken from the vicinity of the CS-SZ it was hoped to be able to discern known pathfinder elements associated with Cu, Pb and Zn mineralisation

The data collected from these transects can be used to develop a model of the regolith sequence lithogeochemistry, and to determine which elements can be reliably analysed by pXRF within a regolith sequence such as that seen on Kangaroo Island.

The study has also attempted to identify any geochemical signatures associated with Cu, Zn or Pb mineralisation, their spatial extent and potential as geochemical vectors towards mineralisation.

KEYWORDS

Kangaroo Island, Cygnet-Snelling Shear Zone, geochemical, regolith, lithogeochemistry, exploration, mineralization,.

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