Conductivity Structure of the Weathered Zone at Number Four Tank, Cobar, NSW

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Abstract

The Number Four Tank region, near Cobar in central New South Wales, is covered by a deep, conductive weathered zone. Schlumberger vertical electric soundings, in-loop SIROTEM soundings and dipole-dipole resistivity show an approximately layered earth conductivity structure over most of the region. The conductive weathered zone can be simplified as one layer of approximately 70 metres thickness and a resistivity of 25 Ohm-m. The Schlumberger soundings also reveal a 3.3 metre thick layer of resistive alluvium overlying the weathered zone.

A weathering trough is located at the base of the conductive weathered zone. Dipole-dipole resistivity was inverted to reveal a 100 metre wide weathering trough with an underlying 150 metre wide conductive zone. In-loop SIROTEM soundings detected the deep conductor, which strikes approximately north-south. Stripping and decay curve analysis reveal a less than 200 metre wide conductor with a 0.45 millisecond decay constant.

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