



Project: MUNGERIBAR CATTLE FEEDLOT
Development of Groundwater Resources

Location: Narromine, Central Western NSW
Client: ANZCO Foods Pty Ltd

Highlights

- Stage 1: Geophysical, aerial photogrammetric, drilling and yield testing of Great Artesian Basin sediments
- Stage 2: Intensive drilling and pumping test interpretation.

Background

Proposed expansion of the irrigated crop production for a beef cattle feedlot on Mungeribar Station necessitated assessment of the groundwater resources available for abstraction.

C. M. Jewell & Associates Pty Ltd was commissioned first by Aquila Agribusiness, and subsequently by ANZCO Foods, to undertake a series of investigations.

Hydrogeological Environment

Alluvium associated with the Macquarie River directly underlies the study area, comprising unconsolidated clays, silts and gravel. Sandstones and shales of the Great Artesian Basin sediments underlie the alluvium. The crystalline basement rocks of the area underlie the sediments at relatively shallow depths of 75 to 120 metres below ground level. A lineament recognised from aerial photography is associated with highly variable drilling success, but yields of up to 76 litres per second have been obtained from this zone.

Potential Adverse Effects

The aquifers contained within the Great Artesian Basin sediments are recharged by local infiltration of excess water and through-flow of groundwater from outcrops to the south of the station. Abstraction of groundwater in excess of replenishment, competitive drawdown between multiple production bores, and boundary effects may cause short or long-term decline in aquifer pressure, affecting neighbouring bore owners.

Objectives and Scope

The initial preliminary assessment of the resource included:

- a detailed review of geological, hydrogeological and water use information,
- interpretation of aerial photographic and aeromagnetic data,
- DC resistivity soundings, and
- drilling and logging of two boreholes, followed by step-drawdown and recovery pumping tests.

Subsequently, six deep boreholes have been drilled into the Great Artesian Basin sediments. Further geological and geophysical down-hole logging, pump testing of five bores, and hydraulic interpretation have completed the field investigations.