



Project: FEEDLOT OPERATION
Environmental Assessment of Existing Feedlot
Environmental Impact Statement of Extension of Feedlot

Location: Western NSW

Highlights

- Large export beef cattle feedlot
- Land disposal of organic wastes
- Hydrogeological investigation, analytical and numerical modelling
- Preparation of remediation, management and groundwater monitoring plans.

Background

C. M. Jewell & Associates Pty Ltd was commissioned by the operator of the feedlot to undertake a hydrogeological study as part of the preparation of an environmental impact statement (EIS) and environmental management plan. The feedlot had been in operation for a number of years, with surplus wastewater disposed of by land application. Previous feedlot operations had resulted in some groundwater contamination by nitrates.

Hydrogeological Environment

The feedlot is located on the lower slopes of a hill, and is underlain by colluvial soils which inter-finger with extensive alluvial floodplain deposits; the latter contain aquifers of major local importance.

Scope

Following a desk study and preparation of an inception report, and discussion with the Department of Water Resources and the NSW Environmental Protection Authority, a field program involving geological mapping, drilling, test pitting, geological and geophysical logging, test pumping, sampling and laboratory analysis was carried out.

A conceptual model outlining the hydrogeology of the site was developed, and formed the basis of a multi-layered finite-difference numerical model. Using this model, a system of pumping boreholes was designed to perform two functions: to create a groundwater capture zone that would contain existing contamination, and act as a backup to improved point-source controls, for prevention of future contamination. The borehole system will also provide water to meet feedlot consumptive use requirements, with any surplus being used for fodder irrigation.

A detailed report setting out the results, conclusions and recommendations of the study was prepared and submitted as part of the EIS for the extension.