



**Project: BOTTLED SPRING WATER EXTRACTION
Groundwater Assessment**

**Location: Lithgow, NSW
Client: Lithgow Valley Springs**

Background

A spring water bottling company wished to expand their operations by developing new borehole locations. Before such an expansion can proceed, the Department of Infrastructure, Planning and Natural Resources (DIPNR) requires a detailed, site-specific hydrogeological investigation, including pumping tests.

C. M. Jewell & Associates Pty Ltd was commissioned to carry out the pump testing and monitoring program, and to report on the hydrogeological investigation and local impacts.

Hydrogeological Environment

The study region is situated near the western edge of the Permian–Triassic Sydney Geological Basin, on the edge of a structural unit called the Blue Mountains Plateau. The sandstones of the Lower Triassic Narrabeen Group to the west and the Triassic Hawkesbury Sandstone Group to the east dominate the basin's surface geology. The sandstone aquifer's hydrogeological conditions are anisotropic, and are controlled by a series of horizontal fracture and discontinuity zones with varying degrees of interconnectivity.

Objectives and Scope

After pump testing had been completed, C. M. Jewell & Associates analysed the drawdown data from the boreholes and monitoring wells, using a variety of aquifer assessment techniques. Following a desktop review and field investigation of the borehole sites, a report was prepared, which discussed the following:

- the borehole's ability to sustain the water supply;
- the hydrogeological setting of the groundwater supply;
- whether there were any sensitive ecosystems of special conservation value on the vicinity, and how they might be impacted by pumping;
- how extraction might affect the groundwater level of the aquifer surrounding the borehole (including a prediction of the borehole's radius of influence when pumping);
- how the proposed extraction might impact licensed borehole water supplies in the vicinity of the property.