



# Groundwater Assessment and Protection

Earth Systems has an experienced team of specialists in hydrogeology, water chemistry, geochemistry and geology that provides specialist groundwater advice across the entire spectrum of groundwater-related issues, including aqueous geochemistry, water-rock interaction, local and regional groundwater flow systems and groundwater investigations.

Protecting groundwater resources from contamination, and identifying and implementing remediation strategies for polluted aquifers is a foundation of good environmental management. Earth Systems provides specialist expertise in the assessment and management of groundwater-related issues — from identifying and preventing potential groundwater contamination, through to providing real-world solutions for aquifer clean-up.

## SERVICES PROVIDED

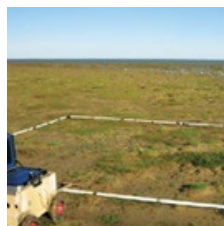
The service provided by the Earth Systems groundwater team include:

- Hydrogeology and groundwater flow analysis of aquifer systems
- Groundwater resource assessment, protection and management
- Stratigraphic analysis
- Design and coordination of groundwater exploration programs including piezometer and bore construction for hydrogeological and groundwater quality assessment
- Benchmark and environmental baseline groundwater characterisation assessments
- Groundwater management strategies to meet environmental guidelines
- Risk assessment and development of risk management strategies for the prevention and management of off-site migration of contaminated groundwater
- Design, implementation and management of comprehensive groundwater remediation and rehabilitation strategies for contaminated groundwater
- Detailed, site-specific groundwater monitoring and/or groundwater sampling programs to meet regulatory environmental requirements
- Project management and coordination of multidisciplinary hydrogeological investigations
- Conceptual and numerical hydrogeological modelling
- Groundwater contaminant dispersion modelling



## PROJECT EXPERIENCE INCLUDES

- Project management, data collection and design of water quality assessments for salinity programs in a variety of environments.
- Projects include areas of the Murray Basin and Lower Murray Lakes in southeastern Australia.
- Characterising groundwater contamination and acid-rock drainage issues on coal and metalliferous mine sites.
- Current projects in Australia identify hydro-geochemical processes and potential contamination pathways in complex geological systems.
- Assessment of groundwater contamination in tailing-rich riverbank deposits downstream of a metalliferous mine in Tasmania, Australia.
- Assessment of potential groundwater contamination at mining sites throughout Australia and internationally.
- Design of a geochemical investigation program for a contaminated site in Sydney, Australia. Evaluation of the geochemical data permitted the development of a series of potential groundwater remediation strategies.
- Training of site personnel in groundwater well-installation, monitoring and sampling methods.
- Pre-development baseline groundwater investigations for numerous mining operations in Australia and Africa.



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