Australasian Groundwater & Environmental Consultants

We empower informed water decisions that help our clients, communities and environment thrive

About us

We're Australia's groundwater specialists, providing groundwater and environmental advisory for more than 25 years.

We have an unrivalled depth of experience and technical excellence borne out of more than 2,500 projects across major industries, agriculture, government and communities in Australasia and beyond.

We combine local insight with global thinking: we stay up-to-date in government legislation, nurture our relationships across government and communities, and leverage the latest in water and environmental issues around the world. With a reputation for solving problems, we pride ourselves on delivering scientifically rigorous advice that consistently stands up to scrutiny.

Through powerful insights and clear advice, we empower informed water decisions to help advance your projects.

Our expertise

We specialise in end-to-end groundwater services, from field work and modelling, to analysis and reports, to expert advisory and peer review.

That means we understand the commercial, environmental, government and community challenges you face, regardless of your project's environment, stakeholders and goals.

For more than two decades, we have been helping clients understand their groundwater environment across a wide range of sectors, including:

- Mining & Quarrying
- Oil & Gas
- Infrastructure
- Agriculture
- Local Councils & Government
- Pumped Hydro
- Defence
- Energy Transition
- Water & Leachate Management
- Legal

Our highly technical advisory team has a depth of knowledge and experience in groundwater and environmental consulting in different countries, regions, cities and towns. We have intimate knowledge of the myriad groundwater challenges and potential impacts you face in the design, planning, development and execution of your project.

We take care of every stage of your groundwater and environmental investigations, from data collection in the field and modelling, through to stakeholder engagement and ongoing monitoring.

End-to-end groundwater services

01 **Drilling & testing supervision**

We custom design industry-leading bores and monitoring equipment and oversee the construction of your infrastructure. Our team evaluates long-term water yield and quality, and ensures compliance with legislation. We help you achieve the objectives of bores and water management plans.

02 **Fieldwork**

We undertake assessments to verify water quality and yield with a 'plug and play' approach to enable data to be fed seamlessly into models. Our data acquisition, monitoring and sampling techniques align with legislative requirements.

03 **Modelling**

We develop conceptual, analytical and numerical models to determine groundwater impacts and identify behaviour of contamination issues or considerations for sustainable extraction. We address mitigation and management scenarios, as well as explore future impacts through uncertainty analysis and integration of climate data.

04 **Analysis & report**

Our analysis is always conducted and reviewed by a Principal-level scientist. We complete geochemical analysis and integrate with groundwater investigations, where required. Through our high-quality, comprehensive reports, we decipher the science and provide easy-to-understand interpretation.

05 **Approvals & stakeholder engagement**

We leverage our strong regulator relationships to ensure your compliance with relevant legislation. We know what it takes to facilitate effective stakeholder engagement across diverse your stakeholders, from government to communities.

06 **Monitoring & troubleshooting**

We conduct monitoring to address sustainability and the impacts of use, as well as evaluate level, quality and volume data. We assist with your government reporting and troubleshoot any ad hoc issues, looking at why they have occurred and conducting rehabilitation where necessary.

07 **Expert advisory**

We support clients on joint expert reports, as expert witnesses in court, in technical review panels or in peer-review and gap analysis of groundwater models and reports.

Our services

Our broad range of hydrogeological and environmental services includes:

Groundwater modelling

- Conceptual hydrogeological modelling
- Analytical groundwater flow modelling
- Numerical groundwater modelling

Groundwater field services

- Routine groundwater monitoring for levels and chemistry/quality
- Water supply bore construction design and drilling supervision
- Monitoring bore construction design and drilling supervision
- Vibrating wire piezometer (VWP) design and installation
- Pumping test planning and supervision
- In-situ hydraulic analysis with packer testing
- Baseline assessments
- Bore assessments
- Bore condition assessments
- Landholder bore census
- Spring surveys and remote sensing analysis

Groundwater approvals and licensing

- Preparing groundwater impact assessments for environmental impact statements (EIS)
- Reviewing monitoring data and preparing annual compliance reports
- Preparing underground water impact report (UWIR)
- Consulting with regulators to support our clients during government engagement
- Assessing the yield of groundwater bores to support applications for water licences

Water Resources: supply & management

- Obtaining regulatory approval
- Hydrogeological mapping and geophysical surveys, including downhole logging
- Bore design, tender documentation, and contract supervision
- Designing and managing the installation of deep bores in the great artesian basin
- Test pumping and borefield analysis
- Numerical modelling for borefield design, operations, and impact assessment
- Bore rehabilitation
- Catchment scale analysis for government sectors
- Irrigation demand, soil moisture and detailed recharge modelling
- Water balance modelling

Contaminant investigation

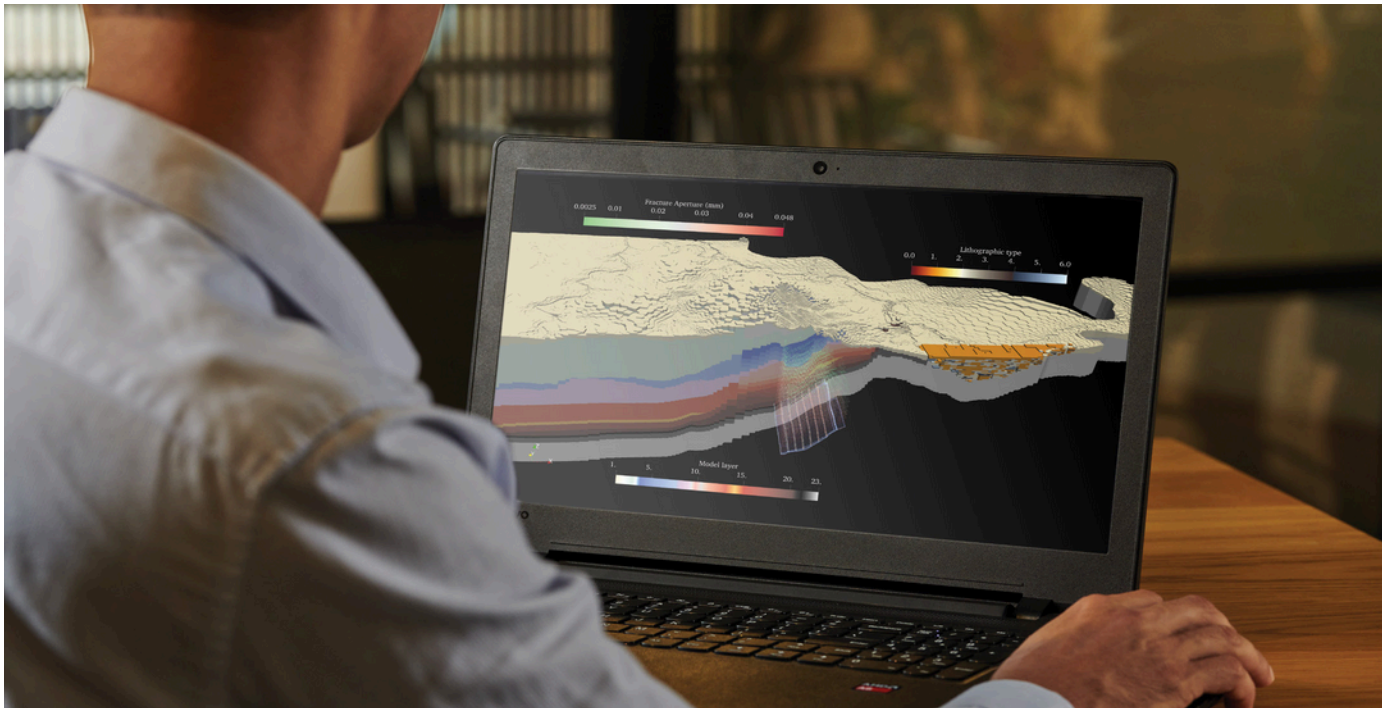
- Reaction modelling
- Solute transport modelling
- Design and implementation of field sampling for contaminated sites
- Groundwater contaminant identification and mapping
- Statutory environmental investigations
- Contaminant source investigations
- Waste and leachate characterisation
- Site remediation or closure predictions
- Design, testing and implementation of remediation programs

Hydrogeochemistry

- Water quality / chemistry monitoring and analysis
- Chemical speciation modelling and contaminant fate transport pathways
- Assessment of leachate generation and mixing interactions
- Groundwater chemistry assessment for environmental assessments including EIS

Expert advisory

- Joint expert reports
- Appearing in court as expert witnesses
- Technical review panels
- Peer-review and gap analysis of conceptual and numerical groundwater models and reports



Our technical team

We have expert teams in multiple locations across Australia and offer the largest consulting modelling team in the country. With around one third of our team at principal-level, we have highly skilled, industry-leading experts who specialise in particular fields across our services. Some of our principals are detailed below.

Tim Armstrong

Managing Director | Principal Hydrogeologist

Tim has more than 20 years' experience in the consulting industry in hydrogeology, having worked mostly on groundwater implications within the energy and resources industries in Australia, Asia, and South America. Trained as a scientist, over the last few years Tim has been leading the operations and management of AGE and steering improvement initiatives to further support clients across service delivery, project management, equipment and technology.

Rodrigo Rojas

Head of Technical Services | Principal Hydrogeologist

Rodrigo brings over 20 years of professional experience in groundwater resources assessment and management, hydrogeological conceptualisation and characterisation, surface and groundwater modelling, flood risk assessment, and community engagement for participatory modelling. He has held leadership positions in consultancy and research organisations, leading multidisciplinary teams to successful project delivery domestically and internationally across diverse market sectors, including mining, agriculture, water utilities, infrastructure and government.

Pieter Labuschagne

Central South QLD Region Manager | Principal Hydrogeologist

Pieter has 20 years of experience in Southern Africa, Africa and South America, including more than 15 years in a South African based consultancy as director and principal scientist. Having started his career in the development of groundwater monitoring systems for coal fired power stations, Pieter's expertise includes project management and delivery of hydrogeological conceptual models, groundwater impact and liability assessments, development of groundwater management plans, consultant reviews and numerical applications.

Dr Christa Placzek

North QLD Region Manager | Principal Hydrogeologist

Dr. Christa Placzek is a multidisciplinary Principal Earth Scientist with specialist knowledge in geology, climatology, hydrology and aqueous geochemistry. Christa's recent experience in research spans several practical fields, including mine site rehabilitation, and hydrogeology. In addition, she is highly qualified in the field of isotopic geochemistry and the application of novel geochemical methods for forensic (i.e. contamination) applications. Christa is skilled in collaboration with stakeholders from all sectors and has used her scientific expertise to explore better methods of assuring environmental compliance at mine sites.

Andrew Durick

Director | Senior Principal Groundwater Modelling

Andrew has over 25 years' experience in groundwater modelling with intimate working knowledge of MODFLOW (industry standard modelling code) and significant experience in both the public and private sectors. He specialises in conceptualisation and modelling of complex groundwater systems, implementation of complex mine plans and third party review of models.

Bryce McKay

NSW Region Manager | Principal Hydrogeologist

Bryce's broad range of expertise includes undertaking and managing field programs, groundwater studies and impact assessments to support environmental approvals for a number of coal and hard rock mines, as well as sand and hard rock quarries in the Hunter Valley, Newcastle and Port Stephens areas. He specialises in writing and reviewing groundwater monitoring and modelling plans, water management plans, trigger assessments, designing and managing field work programs, geological modelling and conceptualisation, inflow estimation, and data interpretation and analysis (including pumping, packer and slug tests).

James Barratt

WA Region Manager | Principal Hydrogeologist

James has been involved with numerous groundwater resource and mine feasibility studies throughout Southern, Central and West Africa. He has conducted and managed field data collection services ranging from groundwater and geophysical surveys, drilling supervision and data collection, and packer and aquifer testing. James has also developed conceptual, analytical and numerical groundwater models to assess groundwater inflows into mining areas and simulated dewatering scenarios to optimise and inform mine dewatering planning and decision-making. He is well-versed at managing groundwater studies for large-scale planned and operational mines and the compilation of technical reports to comply with international standards.

Dr Angela Bush

Principal Hydrogeologist

Angela specialises in integrated groundwater assessments, contaminant investigations and geochemical analyses, with more than 15 years' experience in consulting, research and education. One of her strengths is underpinning groundwater quality and contamination assessments with an understanding of groundwater evolution mechanisms. With detailed knowledge of groundwater systems in various settings, specifically focussing on fractured rock groundwater flow systems of North Queensland, she has supported clients across metalliferous and coal mines, industrial operations, unconventional gas projects, state and federal governments, and agriculture bodies.

Keith Phillipson

Senior Principal Hydrogeologist

Keith specialises in the use of groundwater models to assess and manage the impacts of a broad range of developments on groundwater and surface water resources, with more than 25 years' experience working in jurisdictions including Queensland, New South Wales, Victoria and Europe. In particular, Keith has undertaken, overseen and peer reviewed a wide variety of modelling studies focused on assessing the cumulative impacts of large-scale water supply, coal mining and coal seam gas developments.

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