



# Field Services

## Data-driven decisions in groundwater

Robust and reliable data is key to effective investigations and ultimately, the success of any project that interacts with groundwater.

Comprehensive fieldwork is fundamental to helping you identify any groundwater issues and considerations. Data collection, sampling and monitoring can help define aquifer properties and behaviour, provide access to frequent, real-time monitoring of your groundwater assets and help predict potential impacts through modelling.

Accurate and dependable data collection, sampling and monitoring of your groundwater systems builds solid foundations for your project and enables informed groundwater decisions.

## About us

We're Australia's groundwater specialists, providing water and environmental advisory across Australasia for more than 25 years. We have a 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 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 how crucial fieldwork is to ensure the integrity of data that informs every stage of your project and beyond. Through our wide range of assessments and services, we lay the important foundations to solving your groundwater challenge.

## Our expertise

Our highly skilled and experienced team of field personnel are qualified scientists who specialise in collecting data and monitoring groundwater systems for quality, yield and potential impact.

We pride ourselves on being safety focused. We employ a high standard for health and safety in our fieldwork services, diligently following the requirements of your site and completing necessary inductions. With the same expectations of our staff as your site will have for your staff, you can rest assured our approach to safety is aligned.

Equipped with a deep understanding of your objectives, our field services' team particularly excels at:

- Supervising bore design and installation: water supply, dewatering, solute interception and monitoring bores
- Installing pore pressure and geotechnical equipment: vibrating wire piezometers (vwps) and time-domain reflectometer (tdrs)
- Groundwater monitoring: routine water levels and quality, isotopes, tracers and stygofauna
- Permeability testing: pumping tests, packer tests, slug tests
- Bore assessments: yield, baseline and condition
- Surveys: landholder bore census, spring and other groundwater dependent ecosystems

We keep your end goals in mind, delivering end-to-end integration of well designed data collection. We take a 'plug and play' approach, which means our field data can be fed seamlessly into 3D conceptual and numerical models. This saves you money in the long-run as potential unforeseen circumstances have already been planned for, preventing potential changes and variations later on.

We employ data acquisition, monitoring and sampling techniques that align with legislative requirements while meeting your site-specific needs, delivering the highest standard in reporting and outcomes.

While producing answers at the end of an investigation is one thing, we know that communicating it well to a diverse set of stakeholders is entirely another. We produce technically accurate reports with clear and easy-to-understand interpretation.



*Our priority is delivering high-quality, comprehensive advice that deciphers the science and helps inform and influence your stakeholders.*



## Our services

### Groundwater investigations for:

- Characterising hydrogeological environment (conceptualisation)
- Assessing impact for project development, operations and closure
- Developing groundwater resources for supply
- Dewatering and inflow into pits, quarries and underground mines
- Assessing contaminants in groundwater systems
- Developing monitoring networks
- Rock mass depressurisation
- Dam seepage assessments
- Environmental baseline studies
- Hydrochemistry characterisation and isotope studies for source water, understanding and contamination
- Conducting bore inspections for screen conditions and yield assessments
- Spring health assessments
- Landholder bore yield assessments

### Additional services

- Provide bore design and specification documents for drilling programs to meet Australian standards
- Plan and costing field programs
- Conduct desktop studies for water supply and impact assessments
- Provide management capability of field sub-contractors for groundwater investigations
- Resolve permitting requirements for field groundwater investigations
- Manage data compilation
- Data analysis and interpretation

- Install surface water flow and quality monitoring systems
- Install monitoring equipment and associated telemetry instrumentation
- Integrate geophysical services for groundwater resource interpretation
- Training of site staff in groundwater monitoring techniques

### Resources and field equipment

With our own dedicated resources and equipment, our team can be quickly and easily deployed in the field. We've invested in industry-leading equipment that we keep well maintained and ready for when we need it. This offers you cost efficiency, a reassured level of rigour and additional capabilities within our highly trained team who can supply and install what you need.

- Vehicles set up for general fieldwork activities, sampling and installation of monitoring bores and VWP equipment
- Permeability testing equipment including packer testing kit, slug testing kit and connections with pumping test contractors
- Transportable groundwater sampling pumps and associated equipment
- Downhole cameras to inspect bore and screen integrity
- Calibrated and maintained water quality field testing kits with various field water quality meters
- Water level meters for a range of depths, from 30 metres to 300 metres
- Automated groundwater level loggers for long-term monitoring
- Telemetry systems to set up VWPs, monitoring bores and pumping bores

## Our experience

*Our highly technical advisory team has a depth of experience working in sub-artesian and artesian conditions across sectors including resources, landfill, civil construction, land developments and government throughout Australia and overseas in Africa, South East Asia, Papua New Guinea and South America.*

## Our projects

### Mining - coal

Many Queensland coal mines and projects, such as:

- Capcoal mine complex
- Isaac Downs coal project
- Valeria coal project
- Rolleston Mine
- Hail Creek Mine
- Norwich Park Mine
- Saraji Mine
- Blackwater Mine
- Daunia Mine
- Poitrel Mine
- South Water Creek

Many New South Wales coal mines and projects, such as:

- Narrabri Mine
- Boggabri Coal Mine
- Dartbrook Mine
- Mt Pleasant Mine
- Bengalla Mine
- Mt Aurthur Coal Mine
- Rixs Creek Mine
- Wallarah Colliery
- Glendell Mine
- Integra Underground
- Maules Creek Mine
- Hunter Valley Operations
- Ulan Mine

### Mining - metalliferous

- Cadia gold and copper mine, NSW
- Kanowna Belle gold mine, WA
- Cannington silver and lead mine, QLD
- Aurukun bauxite project, QLD
- GEMCO manganese mine, NT
- McArthur River zinc and lead mine, NT
- Sorby Hills, lead, zinc, silver mine, WA
- Lady Loretta lead, zinc, silver mine, QLD
- Mt Carlton gold mine, QLD
- CuDeco copper mine, QLD
- Ranger uranium mine, NT
- Kidstone gold mine, QLD
- Cracow gold mine, QLD
- Phu Kham copper and gold mine, Laos
- Sera Pelada gold mine, Brazil
- Frieda River gold mine, Papua New Guinea

### Infrastructure

- Airport Link Tunnels, Brisbane QLD
- S1 Sewer Tunnel, Brisbane QLD
- M4 East Tunnel, Sydney NSW
- Cross City Road Tunnel, Sydney NSW
- Rail Link, Chatswood-Parramatta NSW
- Eastlink Tunnel, Melbourne VIC
- Eastern Freeway, Melbourne VIC

### Land development / Landfill Studies / Contaminated Land

- Toondah Harbour development, Brisbane QLD
- Lansdown Eco-Industrial Precinct, QLD
- Browns Plains Landfill, QLD
- Various refineries, QLD
- Various industrial areas, QLD

### Oil and Gas

- Various coal seam gas (CSG) operations, Surat Basin, QLD

### Energy transition

- Kidston pumped hydro project, QLD
- Pentland biofuel project, QLD
- Stuart oil shale project, QLD



## Our team

### 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).

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### 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.

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### 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.

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

*If you're looking for an expert fieldwork partner to deliver the robust results you're looking for, get in touch with us.*

### 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.

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### 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.

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