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GROUNDWATER AND HYDROGEOLOGY

MARKET SECTORS

- Defence
- Government
- Construction
- Waste Management
- Resource
- Industrial

WHAT CAN EPIC DO?

Epic Environmental offers a comprehensive range of technical skills and experience in the assessment, characterisation, monitoring and management of groundwater, as both a risk and a resource. Epic has a proven track record of successful delivery of groundwater projects, including negotiation and interaction with regulatory authorities and other stakeholders.

GROUNDWATER SERVICES

Groundwater is a core part of Epic's service offering and a key consideration in many of our projects. Epic offers a broad range of groundwater services to support our clients in assessing and managing groundwater resources. Our multidisciplinary team has provided advice and services supporting a wide range of sectors including infrastructure, mining, oil and gas, construction, property development, and defence and agriculture; all while maintaining a highly respected track record of successful delivery. Our staff has experience in providing specialist technical services and advice to support for environmental planning and decision making. Epic has extensive experience in interactions with both regulatory authorities and key stakeholders to support project delivery.

GROUNDWATER IMPACT ASSESSMENT AND MANAGEMENT PLANS

Groundwater impact assessments and management plans are increasingly important in the planning and delivery of projects due to expanding regulatory requirements, and the widespread reliance on groundwater as a resource for the environment and human consumption. Epic's staff has experience in preparing and delivering groundwater impact assessments and management plans to support a wide range of projects and industries including mining and resources, transport infrastructure, general construction, and waste management. Our team is highly respected in the industry and with government regulators responsible for administering the relevant legislation. We keep abreast of emerging issues and new developments to ensure that our clients are one step ahead.

BASELINE ASSESSMENT

Baseline assessments are an essential component in establishing the initial conditions of a site and form the basis for assessing the impacts of a proposed activity or development. Epic's staff has extensive experience in the planning and delivery of groundwater baseline assessments to support due diligence, feasibility studies, and environmental impact assessments.

We are able to provide desktop and field based assessments tailored to suit your needs.

GROUNDWATER CONTAMINATION ASSESSMENT AND REMIDIATION

The widespread occurrence of shallow groundwater means that it is often subject to impacts from contamination by surface activities. At Epic, we can provide professional services and advice for sites where groundwater contamination may exist, or where management and remediation is required. Our staff has unique and extensive experience in assessing anc characterising groundwater contamination, calculation of contaminant volume/mass, contaminant fate and transport modelling, environmental risk assessment, setting remedial targets, and providing advice on remediation design in accordance with industry best practice.

GROUNDWATER RESOURCE ASSESSMENT AND MANAGEMENT

Many projects rely on reliable supply of groundwater for successful design. The assessment of groundwater resource provides essential knowledge in both planning and sustainable governance. Epic's staff has expert knowledge in undertaking assessments of groundwater resource to inform the planning and management of groundwater small scale allotments to catchment scale developments. Our staff has experience in engaging with government agencies, regulators, and key stakeholders, in the assessment and management of groundwater resources.

DEWATERING AND DISCHARGE

Pollutants and flows associated with dewatering discharge have the potential to cause impacts to receiving environments. Dewatering also has the potential to induce ground settlement and the loss of storage in aquifers. Expert assessment is often required to ensure that dewatering during the construction or operation of a site is managed to minimize environmental harm and meet regulatory requirements. Epic's staff has expert experience in groundwater dewatering assessments to support and enable construction and mining activities including inflow estimates, drawdown modelling, surface water impacts assessments, and developing management measures to mitigate risks.

GROUNDWATER-SURFACE WATER INTERACTIONS, GDE'S AND STYGOFAUNA

Through collaboration of in-house hydrogeologists and ecologists, Epic has the capability and experience in assessing, monitoring and managing surface water – groundwater interactions, and groundwater dependent ecosystems (GDEs). Our staff can provide sound technical advice on a wide range of matters including field verification of GDEs, stygofauna assessments, physical habitat assessments, baseflow monitoring, water quality monitoring and pollution impact assessments.

OUR SERVICES INCLUDE

Advisory Services:

- Independent hydrogeological review
- Baseline assessments
- Groundwater monitoring plans
- Groundwater management plans
- Groundwater impact assessments
- Groundwater resource and water supply assessments
- Groundwater chemistry and contamination assessments
- Contaminant fate and transport assessment
- Groundwater treatment and remediation
- Dewatering and discharge impact assessments
- Groundwater usage audits
- Drawdown/depressurisation impact assessments
- Regulator and stakeholder engagement
- Third party compliance and environmental performance auditing

Field Services:

- Design and installation of piezometers
- Design and installation of water supply wells
- Groundwater infiltration and recharge testing
- Permeability and yield testing
- Groundwater sampling and monitoring
- Surface water sampling and monitoring
- Field verification of GDE's
- Stygofauna assessment and sampling
- Due diligence site inspections
- Borehole condition surveys and audits

OUR EXPERIENCE

- **GAB Spring Monitoring Program –** Instrumentation of springs with CCTV camera, pressure sensors and a weather station, combined with hydro-chemical ecological and wetted area surveys to establish baseline ecohydrological function for ongoing monitoring comparison.
- **South-East Queensland Landfill –** Completion of quarterly compliance monitoring at a South-East Queensland landfill site in accordance with EA conditions including sampling, analysis, and quarterly and annual reporting of groundwater, surface water, leachate, landfill gas and dust monitoring completed at the site.
- **CSG to LNG Environmental Impact Statement (EIS) –** construction of a basin-wide, multiple- aquifer, cumulative impact, numerical groundwater flow model to assess potential environmental impacts associated with a CSG to LNG mega-project.
- **Gasfield Groundwater Monitoring Program–** EIS model output used in a source-pathway- receptor framework to locate life-of-field monitoring bores, with focus on early warning of potential impacts.
- **Mineral Sands Mine Monitoring Program –** Rationalisation of a mine groundwater and surface water monitoring program based on an objective review of historical data and a multi- criteria analysis of risk and vulnerability.

KEY STAFF

David Harris (MGeol, MSc) is an Associate Hydrogeologist, Water Quality Specialist, and Contaminated Land Practitioner with over ten years of consulting experience in engineering and environmental planning across Australia and the UK.

David has held senior technical and leadership roles throughout his career, acting as water resources team leader, national practice lead, senior technical advisor, and independent technical reviewer for major international consulting firms. In his time as a consultant David has provided leadership and support across a diverse range of engineering and environmental projects of varying scale and complexity requiring expert knowledge and practical outcomes.

David has significant experience with the preparation of environmental impact studies (EIS), strategic environmental assessments (SEA), and baseline studies to support environmental planning activities for major projects and state significant infrastructure. David also has significant experience in leading and supporting specialist hydrogeological investigations including catchment and local scale groundwater resource studies, groundwater contamination and remediation assessments, dewatering-discharge impact assessments, drawdown/ depressurisation assessments, and preparation of groundwater monitoring / management plans.

David has provided support to a wide range of client across a range of sectors including government agencies, water utilities, defence, manufacturing, energy, oil and gas, and construction contractors for both small scale and state significant infrastructure developments. He has recently been involved in the assessment of discharge impacts from tunnel dewatering, PFAS contaminant fate and migration from fire training facilities, drawdown impacts from mine expansion, and informing progressive rehabilitation and closure planning for operational mines. David is currently a committee member of the International Association of Hydrogeologists (NSW Branch).