Capability Statement
Valenza Engineering is a global specialist groundwater engineering company providing high quality, full spectrum technical solutions in the fields of groundwater engineering and environmental hydrogeology. With offices in Asia Pacific, Middle East and Europe, we provide groundwater advice across the government, mining, quarrying, construction and water supply sectors.

Managing multi-disciplinary projects across multiple sectors, we use high-level precision to solve challenging technical problems. From concept study to field-testing, complex numerical modelling, and approvals, we deliver smart and innovative solutions. Our team of experts provide Expert Witness support for litigation and conflict resolution.

Valenza Engineering team of specialists have worked on large-scale mining, infrastructure, water resource and impact assessment projects in Asia-Pacific, South-East Asia, Middle East, Africa and Europe, for more than 20 years.

For more information on any of our services please visit: www.valenza-engineering.com
Valenza Engineering is the specialist in providing high quality groundwater engineering, water resources and environmental hydrology services tailored for the mineral resources, rural and urban water supply, construction and infrastructure, and environmental protection sectors. Valenza Engineering strive to provide safe and efficient solutions to reduce operating costs, increase productivity and maximise economic benefit of projects.

Mineral Resources Hydrogeology

Our distinguished team of engineers is familiar with the lifecycle of mining operations and with the groundwater challenges affecting opencast and underground mines.

Working hand in hand with the mining team and geotechnical engineers, we provide practical groundwater control solutions, and align our recommendations (dewatering, depressurisation or grouting measures) with the specificity of the site and the technique and resources readily available.

Our specialists provide site-wide water balance assessments, analysing mine voids capture, long-term groundwater interaction and surface water contribution, and outlining recommendations for operational and post closure water management measures.

We develop and optimise site specific monitoring and testing programs and through the life of operations (from greenfield exploration, approvals, to operational phase and closure), we assist our client in collecting and analysing the data to meet their regulatory conditions.

We conduct analytical and numerical modelling and inform our clients on their dewatering, depressurisation and water supply long term needs. We believe in a holistic and environmentally conscious mining approach and advise on the operational impact on surrounding users and groundwater dependent ecosystems.

**Services**

- Dewatering and groundwater control
- Drainage and slope depressurisation
- Design, control and management of temporary and permanent dewatering systems
- Hydrology and water balance
- Water management & planning
- Tailings storages seepage assessment
- Field investigation, hydraulic testing
- Instrumentation and live monitoring
- Flow and transport numerical modelling
- Contamination & acid mine drainage
- Vulnerability, feasibility and impact studies
- Environmental risk assessment
- Approval, licensing, permitting and compliance
- Closure, rehabilitation and remediation planning
We have extensive experience in assessing temporary and permanent groundwater impacts associated with construction and infrastructure projects. From concept study to site investigation and numerical modelling, we assist our clients on small and large scale complex projects, requiring technical groundwater input. We work hand in hand with the construction and the design team to deliver cost effective and practical dewatering solutions.

Familiar with a large range of dewatering methods (trenching, deep wells, ejectors, horizontal drains, etc.), we design the most appropriate method, conduct conceptual and numerical modelling and analyse the efficiency of the system during operational phase.

Our team of specialists has been involved with large tunnelling projects, deep basement excavation, slopes and cliffs drainage, roads and bridges and projects requiring large footprint dewatering, in Australia and overseas.

We engage with contractors to identify the dewatering and discharge constraints, define the phasing and the most practical groundwater control measures for the site. We assess the impact on surroundings and in particular, the risk of migration of contaminants within the impacted area. We develop the relevant field monitoring programs and, in conjunction with the regulators, define the trigger levels to be adopted.

**Services**

- Stakeholders engagement
- Knowledge gap analysis
- Design and implementation of investigation program
- Supervise field work, including testing and installation of live monitoring instrumentation
- Baseline groundwater level and quality assessment
- Conceptual and numerical modelling
- Definition of groundwater control measures (dewatering, depressurisation, tanking)
- Conduct site visits and monitor measures efficiencies
- Assess discharge constraints
- Drafting services
From small feedlots to large scale farming, we assist our clients from the licensing perspective, to the design, the installation and the testing of the borefield, and the delivery of a functional pumping infrastructure.

We consult with regulators and review the existing dataset prior to defining our testing program to ensure the delivery of a sustainable and cost-effective solution for our clients.

Our distinguished team of engineers plans field programs and provide hydrogeological investigation tailored to the demand and the existing supply network. We conduct our field investigation in accordance with the relevant guidelines and use industry standard numerical modelling to assess the long-term impact on surrounding users and groundwater dependent ecosystems.

We work extensively with local and national drilling and pumping contractors and have built a solid on-the-ground experience with drilling and testing campaigns.

**Services**

- Engagement with regulators
- Knowledge gap analysis
- Design and implementation of Investigation program
- Baseline groundwater assessments
- Conceptual, analytical and numerical modelling
- Well and borefield design optimisation, installation & maintenance
- Investigation programs, packer test, pumping test
- Hydraulic testing analysis
- Bore integrity assessment
- Water quality assessment
- Sustainable resources evaluation
- Water demand and storage evaluation
- Aquifer storage and recovery
We conduct monitoring and compliance reporting for a range of clients, involved in the resource, waste management and construction sectors. From concept study, to site investigation and numerical modelling, we provide our clients with smart groundwater quality input on a range of complex projects.

We have been working on monitoring projects for several years, providing high level input and analysis tailored to the phasing and level of contamination. Familiar with a large range of remediation methods, we advise on the most appropriate system, conduct conceptual and numerical modelling and analyse the efficiency of the system during the operational phase.

We engage with our clients, the regulators and contractors to identify the main constraints and the most optimum phasing for the works. We advise our clients when a programme can be scaled down or needs modification.

We assess the risk of migration of contaminants within the impacted area, develop the relevant field monitoring programs and provide field services including monitoring, sampling and testing.

**Environmental Protection**

**Services**

- Engage with clients and regulators
- Knowledge gap analysis
- Design and implementation of investigation program
- Supervise field work, including testing and installation of live monitoring instrumentation
- Baseline groundwater level and quality assessment
- Conceptual, flow and transport numerical modelling
- Compliance reporting (monthly, quarterly, yearly)
The team at Valenza Engineering includes experienced hydrogeologists, groundwater modellers, surface water and hydraulic engineers. As the company grow, we are committed to attracting, developing and retaining the right people who are highly competent, live the company’s values and actively contribute to our long-term success. Valenza Engineering personnel are members of internationally recognised professional organisations, e.g. IAH, International Association of Hydrogeologist. Principal personnel are Chartered Professionals from Engineers Australia and Overseas Engineering bodies.

**Alexis Valenza (Melbourne Office)**
Managing Director, Principal Groundwater Engineer

Alexis Valenza has a Master of Hydrogeology and Engineering Geology from the University of Montpellier, France. He has worked since 1995 with international mining and hydrogeological consulting firms on large environmental, geotechnical and infrastructure projects – including tunnelling and underground dewatering – in Europe, Africa, Middle East and South-East Asia. With a broad base of expertise, Alexis thrives on the challenges that come with unravelling complex problems. He is dedicated to delivering innovative problem solving and high level technical precision to clients who appreciate his holistic approach to water management. In 2011, Alexis launched Valenza Engineering, a Melbourne-based consultancy providing technical and advisory services to the mining, construction, water resource and contaminated land industries, in groundwater and related environmental science.

**Finnigan Johnson**
Senior Hydrogeologist

An Environmental Engineer/Hydrogeologist with professional experience working in Canadian and Australian environmental consulting services. Professional experience gained from undertaking, organising and reporting on groundwater investigations across the water resource, mining and contaminated land sectors. Finnigan has a bachelor of Environmental Engineering and a Diploma of Hydrogeology.

**Dr Kevin Hayley**
Senior Groundwater Modeller

Kevin Hayley is a Geophysicist/hydrogeologist with 14 years of experience in using geophysical methods for environmental monitoring and mineral exploration, and in the construction and calibration of numerical models of groundwater flow and contaminant transport. He received his Ph.D. from the University of Calgary in 2010 where he conducted research into monitoring salt impacted soil using time lapse geophysics. He has strengths in numerical methods, inverse problems and uncertainty analysis.

Recent project experience over the past 5 years has involved developing methods and software for highly parallelized groundwater model calibration and predictive uncertainty quantification using cloud computing.

**Joshua O’Connor**
Graduate Environmental Engineer

Joshua has recently completed his final year of studies, at RMIT University, where he undertook an Honours Degree in Bachelor of Environmental Engineering. Joshua joined Valenza Engineering in 2018.

**Dr Mohammad N Cheema**
Principal Hydrologist, Hydraulic Engineer

Dr Cheema has more than 35 years’ experience in hydraulics, hydrology, drainage, river engineering and water sensitive urban design, having worked on a variety of water resource and infrastructure projects in Australia, the United States and many developing countries. His expertise includes hydraulics, hydrology and water resources, as well as environmental aspects of development, river engineering and drainage engineering.

**Paul Larkin**
Principal Hydrogeologist

Paul has over 35 years’ experience in ground water and environmental issues. From 1979 to 2003, he was Founder and CEO of Aqua Tech/Environmental Consultants, a leading natural resources and environmental consulting group in Botswana. Experienced in ground water, water master planning, environmental impact assessment, spatial planning, natural resources management, environmental law and policy consulting, Paul has worked in Australia, Africa, the Middle East, the Pacific, South America and Europe. He currently consults with clients from a range of industries, including the industrial minerals and mining sectors, on ground water and environmental issues in Australia.
Peter Gribbin (New Zealand Office)
Senior Principal Hydrogeologist

Peter has more than 30 years’ experience as a Chartered Geologist, and an Engineering and Environmental Consultant within the mining, civil engineering and environmental sectors. From the mining industry to environmental regulation, Peter has developed vast expertise in the fields of mineral exploration, mining engineering, geotechnics and hydrogeology, working and supporting projects in Africa, Asia, Australia, NZ and the UK. For the past 12 years, Peter has consulted on mining, major infrastructure, land development and water resource projects in the UK and Australasia-Pacific region. His diversity of experience enables him to apply many strands of geoscience in an integrated manner – presenting whole solutions and remaining a specialist across key areas.

Dr Attila Kovacs (Hungary Office)
Senior Groundwater Modeller

Dr Kovacs is a specialist in groundwater modelling and an internationally regarded and widely published expert in the field of karst and fractured rock hydrogeology. Awarded a PhD from the Hydrogeology Centre, University of Neuchâtel, Switzerland, Dr Kovacs has worked at the Water Resources Research Institute of Hungary and the Geothermal Institute of Auckland University, New Zealand. As a technical expert and senior project manager globally since 2005, he brings experience in water resources protection, nuclear waste disposal, contaminated site assessment and remediation, mining, Coal Seam Gas, geothermal and geotechnical projects. Dr Kovacs is adept in applying large variety of modelling software, including Feflow, Visual Modflow, Groundwater Vistas, GMS, TOUGH2 and compflow for modelling porous, fractured and karstic groundwater and multiphase systems.

Dr Jean-Philippe Bellot (France Office)
Senior Geologist and Hydrogeologist

Dr Bellot is specialised in the field of porous aquifer, fractured rock hydrogeology and surface water-aquifer exchanges. Jean Philippe holds a Master in Geology form the University of Grenoble and was awarded a PhD in Mineral Geology from the University of Montpellier, France. As a technical expert and project manager, he brings a wealth of experience in the water resource sector. His experience covers large scale pumping test, water treatment and supply management techniques aligned with European best practice. Dr Bellot has been involved in numerous large scale urban and rural supply projects, groundwater sustainability and protection using spatial analysis techniques.

Dr Bellot has started his carrier with the BRGM (French geological survey), and has been in consulting since, with consulting firms specialising in water management for local authorities (HGM) and in innovative metrology applied to water resources (imaGeau).

Kiril Pezhgorski (Qatar Office)
Senior Water Engineer

Kiril has substantial knowledge and experience in the fields of water resource management, capital investment planning and operational efficiency of water distribution systems. With 15 years’ experience, working across four continents, Kiril’s expertise includes integrated master planning, hydraulic modelling, design of water and waste water infrastructure and facilities, non-revenue water analysis and management, financial analysis and investment planning, as well as asset management and optimisation. Based in Qatar for the past six years, Kiril has supported strategic projects with leading government agencies: City of Doha (sustainable irrigation strategy), Aspire Foundation (assessing alternative ground water resources, operational and asset management strategy; Public Works Authority (undertaking geotechnical site investigation).

Dr Anastasia Boronina (Perth Office)
Principal Hydrogeologist and Groundwater Modeller

Anastasia is a hydrogeologist with over 20 years of experience within research and consultancy. Anastasia conducted her PhD and post-doctorate research in hydrogeology of semi-arid areas in Cyprus and Africa and was awarded a PhD degree from ETH Zurich, Switzerland. After moving to UK in 2006 and then in Australia in 2008, Anastasia worked as a groundwater consultant on a wide range of water supply, mining and construction projects in Australia, Africa, Russia, Kazakhstan and Mongolia.

Anastasia has an expertise in groundwater flow and transport modelling using all commercially available computer codes. She developed numerous regional groundwater models for water supply, dewatering and environmental assessment purposes and she was leading groundwater modelling projects in several consulting teams in Western Australia. Additionally to consultancy work, Anastasia is currently lecturing and supervising research students in University of Western Australia on the subjects of Hydrogeology and Mining Hydrogeology.

Hassan Mounzer
Geotechnical Engineer, Global BDM

Hassan has an international career spreading between the Middle-East, Europe and Australia. He has years of experience in the oil & gas offshore geotechnical engineering, consulting for national and international companies such as Chevron, Woodside, Petrofac and Saudi Aramco. His business acumen from his MBA study year at the university of Western Australia and his experience in business development and project leader for the multi-national company ATCO Gas is very significant. Hassan is a driven leader and great communicator with a focus on clients’ satisfaction and job acquisition. He holds a master in geo-mechanical engineering from Grenoble (France) and he is a multi-lingual professional (English, French, and Arabic).
Valenza Engineering specialists have had major roles on challenging projects in Australia and internationally. A sample of the achievements we’re proud to highlight include:

### Dewatering and Groundwater Management
- Alcyone - Texas Silver Mine (QLD), Pump testing and dewatering assessment
- ASQ - Newbridge Quarry (VIC), Dewatering impact assessment
- Newcrest - Toguraci Gold Mine (Indonesia), Groundwater monitoring and modelling, technical staff training
- Asanko - Obotan Gold Project (Ghana), Pore pressure monitoring, analysis and reporting
- Acacia Mining - Gokona Gold Mine (Tanzania), Dewatering modelling
- CPB/UGL - Melbourne Water Western Treatment Plant Upgrade (VIC), Design of dewatering measures
- Leighton Contractors - Amaroo Main Sewer (VIC), shaft dewatering assessment
- Pompes & Energie - Parking du Quai de la Douane (France), Dewatering Modelling
- E&G - Zac St Antoine (Monaco), Dewatering Assessment
- Pompes & Energie - Ouvrages Hydrauliques de Franquevaux et Tourradons (France), Dewatering Assessment
- Hyder (Arcadis) - Abu Hamour Market (Qatar), Dewatering assessment
- Aspire Foundation - FIFA 2022 Infrastructure (Qatar), Aspire Zone Groundwater Dewatering
- EnviroPacific - RAAF Williams (VIC), Groundwater modelling

### Groundwater Engineering Assessment
- Newcrest - Ridgeway UG Mine (NSW)
- Barro Group - Sunshine Landfill & Quarry (VIC)
- Barro Group - Mountain View Quarry, Point Wilson (VIC)
- Alcyone - Texas Silver Mine (QLD)
- Barro Group - Donnybrook Quarry (VIC)
- QDC - Al Bayt Project Site (Qatar)
- E&G - Zac St Antoine (Monaco)
- Aspire Logistics - FIFA 2022 Infrastructure (Qatar)
- Newcrest - Toguraci Gold Mine (Indonesia)
- BMA Coal - Peak Downs, Broadmeadow, Caval Ridge, Norwich Park, South Walker Creek and Saraji Mines (QLD)
- Asanko - Obotan Gold Project (Ghana)
- Leighton Contractors - Glen Iris Main Upgrade (VIC)
OUR KEY PROJECTS

Valenza Engineering specialists have had major roles on challenging projects in Australia and internationally. A sample of the achievements we’re proud to highlight include:

Hydrogeological and Environmental Assessments

- Barro Group - You Yang Quarry (VIC)
- Bisinelli Development - Lara Sand & Gravel Quarry (VIC)
- Barro Group - Wyndhamvale Quarry (VIC)
- Western Water - Eynesbury Storage (VIC)
- CRLJV - Clayton Road Landfill (VIC)
- Senversa/VicTrack - South Dynon Rail Yard (VIC)
- EnviroPacific - RAAF Williams (VIC)
- Senversa - Port Kembla Copper (SA)
- Casacir - Neerim North Quarry (VIC)
- Barro Group - Mountain View Quarries (VIC)
- Western Water - Bacchus Marsh and Woodend Treatment Plants (VIC)

High-Level Technical and Advisory Services

- CYP - Melbourne Metro Tender (VIC)
- John Holland/CPB - Western Gate Tunnel Project (VIC)
- Thiess - Greenvale Dam Safety Upgrade (VIC)
- BrisConnections/Arcadis - Brisbane Airport Link (QLD)
- Tulla Sydney Alliance - M80 Ring Road widening and WG Freeway upgrade (VIC)